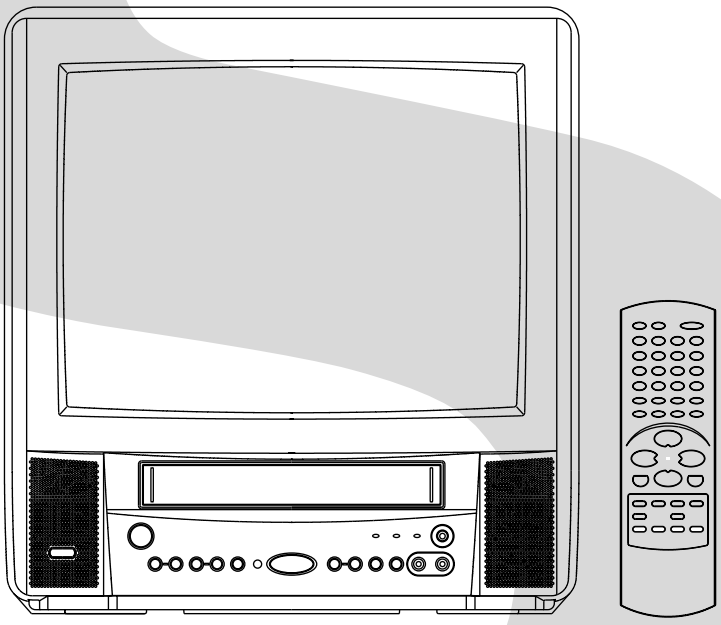
TOSHIBA

FILE NO. 140-200009

SERVICE MANUAL

COLOR TELEVISION/ VIDEO CASSETTE RECORDER

VTV1402S



SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.
Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.
Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.
Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

(INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the eternal exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1]**.
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]

External exposure metal: Antenna terminal
Earphone jack

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

1. MODEL NUMBER and VERSION LETTER
   The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.
2. PART NO. and DESCRIPTION
   You can find it in your SERVICE MANUAL.

GENERAL SPECIFICATIONS

G-1.Outline of the Product

14 inch(335.4mmV):Measured diagonally
Color CRT 90 degree deflection
2 -Speed 1/2" Video Cassette Recorder
☒VHS ☒Recorder/Player
☐VHS-C ☐Player

G-2.VCR Format

VHS Standard ☐NTSC ☒PAL ☐SECAM ☐PAL-M ☐PAL-N
☐VHS Hi-Fi Audio System

G-3.Video Recording System :Rotary,slant azimuth two head helical scan system
Luminance Component :FM recording
Chrominance Component :Low frequency converted direct recording

G-4.Broadcasting System

U.K. System I

G-5.Color System ☐NTSC ☒PAL ☐SECAM or Monochrome signal

G-6.NTSC Playback(PAL 60Hz) ☒Yes ☐No

G-7.MESECAM ☐Yes ☒No

G-8.Cassette Tape

☒VHS type video cassette tape Width 12.65mm (1/2 Inch)
☐VHS-C type video cassette tape Width 12.65mm (1/2 Inch)

G-9.Tape Speed

NTSC or PAL-M		PAL or SECAM	
☒SP	33.35 mm/sec	☒SP	23.39 mm/sec
☐LP	16.67 mm/sec	☒LP	11.69 mm/sec
☐SLP	11.12 mm/sec		

G-10.Recording/Playback Time

NTSC or PAL-M(NTSC Playback Only)
☒at SP Mode Max. 210 min. (with T-210 cassette)
☐at LP Mode Max. 420 min. (with T-210 cassette)
☐at SLP Mode Max. 630 min. (with T-210 cassette)

PAL or SECAM
☒at SP Mode Max. 300 min. (with E-300 cassette)
☒at LP Mode Max. 600 min. (with E-300 cassette)

G-11. Deck

☐OVD-5 ☐OVD-6 ☒OVD-6S

G-12.Rewind/Fast Forward Time(Approx.)

☒ FF: 1'48" / Rew 1'48" (☐with T-120 cassette) ☒with E-180 cassette)

G-13.Search Speed

☒SP 5 and 7 Times(PAL)
☒LP 7 and 13 Times(PAL)
☒SP 3 and 5 Times(NTSC)

G-14.Speed

☐SP _____ Times
☐LP _____ Times
☐SLP _____ Times

G-15.Frame Advance

☐SP _____ Times
☐LP _____ Times
☐SLP _____ Times

GENERAL SPECIFICATIONS

G-16.Antenna Input Impedance
VHF/UHF 75 ohm unbalanced

G-17.Tuner and Receiving channel ☒1Tuner Syatem ☐2Tuner System

Tuner : Contactless Electric tuner

☐Oscar(W/O HYPER) ☐Oscar(W/ HYPER) ☐France CATV) ☒Others

Coverage channel
21~ 69

Tuning System
☒Frequency syn. ☐Voltage syn. ☐Others

G-18.Preset Channel
80 channels

G-19.Intermediate Frequency

Picture(FP)	39.5 MHz	____ MHz	____ MHz
Sound (FS)	33.5 MHz	____ MHz	____ MHz
FP-FS	6.0 MHz	____ MHz	____ MHz

G-20. Stereo/Dual TV Sound
☐Yes(☐NICAM ☐GERMAN ☐USA ☐JAPAN) ☒No

G-21.Video Signal
Input Level 1 Vp-p / 75 ohm
Output Level 1 Vp-p / 75 ohm
S/N Ratio 53 dB (Weighted)
Horizontal Resolution at SP Mode 240 Lines

G-22.Audio Signal
Input Level
Line -3.8 dB / 50 Kohm
RCA - dB / - Kohm
Output Level
Line -3.8 dB / 1 Kohm
RCA - dB / - Kohm
(0dB=0.775 V rms)
S/N Ratio at SP Mode 42 dB
Harmonic Distortion : 1.5 % (1KHz)
Frequency Response : at SP Mode 100 Hz ~ 10 KHz
at LP Mode 100 Hz ~ 5 KHz
at SLP Mode _____ Hz ~ _____ KHz

G-23.Heads
Video ☒ 2 Rotary Heads
FM Audio ☐_____ Rotary Heads
Audio / Control ☒ 1 Stationary Head (☒Mono ☐Stereo(L,R))
Erase ☒ 1 Full Track Erase

G-24.Motor: 3 Motors
☒Tape/Cassette Loading
☒Cylinder (Direct Drive)
☒Capstan (Direct Drive)

G-25.Power Source
230~240 V ☒AC 50Hz ☐AC 60Hz
☐EXT DC Jack _____V

G-26.Power Consumption:
55 W at AC 230 V 50 Hz
- W at DC - V
(at TV and VCR ON)
Stand by: 6 W at AC 230 V 50 Hz
Per Year: - kWh / Year

GENERAL SPECIFICATIONS

G-27.Dimensions(Approx.) 362 mm(W) 369 mm(D) 382 mm(H)

G-28.Weight(Approx.) Net : 12.5 Kg (- lbs)
Gross: 14.5 Kg (- lbs)

G-29.Cabinet Material

Cabinet Front:	☒PS	☒94HB	☐DECABROM
	☐ABS	☐94V2	☐NON-DECA
		☐94V0	
Cabinet Rear:	☒PS	☒94HB	☐DECABROM
	☐ABS	☐94V2	☐NON-DECA
		☐94V0	
Jack Panel:	☒PS	☒94HB	☐DECABROM
	☐ABS	☐94V2	☐NON-DECA
		☐94V0	

G-30.Cassette Loading System: ☒Front Cassette Loading System
☐Top Loading System

G-31.Tape Counter: Linear Time Tape Counter

G-32.Protector: ☒Power Fuse ☐Dew Sensor

G-33.Regulation

Safety

☐UL	☐CSA	☐SAA	☐SI	☒CE	☒BEAB
☐BS	☐NF	☐NEMKO	☐FEMKO	☐DEMKO	☐IEC65
☐SEMKO	☐NZ	☐HOMOLO	☐SABS	☐CNS	☐SISIR
☐NOM	☐AS3159	☐DENTORI	☐UNE	☐GOST	☐NONE

Radiation

☐FCC	☐DOC	☐FTZ	☐PTT	☒CE	☐SEV
☐SABA	☐SI	☐NF	☐NZ	☐HOMOLO	☐UNE
☐CNS	☐CISPR13	☐DENTORI	☐AS/NZS	☐NONE	

X-Radiation

☐PTB	☐DHHS	☐HWC	☐DENTORI

G-34.Temperature
Operation 5 ºC~ 40 ºC
Storage -20 ºC~ 60 ºC

G-35.Operating Humidity
Less than 80 %RH

G-36.Clockand Timer
Calendar : 1990/1/1 ~ 2081/12/31 (Initial ☒2000/1/1 ☐2005/1/1)
Built-in 1 Month 8 Events Programmable Timer
One Touch Recording : Max Time SP Mode 5 LP Mode 10 Hours

Sleep Timer	☒Yes Max 120 Min.(10 Min. Step)	☐No
On/Off Timer	☒Yes 1 Programs	☐No
Wake Up Timer	☐Yes _____ Programs	☒No

G-37.Timer back up Time
More than 30 Minutes (at Power Off Mode)

G-38.Terminals

☒VHF/UHF Antenna	☒Din Type	☐F-Type ☐France Type
☒Front Video Input	(RCA ø8.3)	
☒Front Audio Input	(RCA ø8.3)	
☐Rear Video Input	(RCA ø8.3)	
☐Rear Audio Input	(RCA ø8.3)	
☐Rear Video Output	(RCA ø8.3)	
☐Rear Audio Output	(RCA ø8.3)	
☐Audio Output(Rear)	☐Phono Jack (RCA ø8.3)	
☒21 Pin (x 1)	☐DC Jack 12V (Center +)	
☐AC Inlet	☐Ext Speaker	
☐Diversity	☐Ear Phone	
☒Head Phone		

GENERAL SPECIFICATIONS

G-39.Indicator

Indicator ☒Standby (Red) ☒Rec/OTR (Red) ☒T-Rec (Red) ☐On Timer (___) ☐NONE

G-40.On Screen Display

☒Menu

☐ATS
☒Timer Rec Set
☐Ch Set-up
☐Auto Tuning ☐Ch Mapping
☐CH Allocation ☒Ch Tuning(☐Decoder On/Off)
☒TV Set-up
☒On/Off Timer Set ☐Audio
☒Picture
☐VCR Set-up
☒Auto Repeat On/Off ☐System Select
☐Scena Repeat
☐User Registration
☐System Set-up
☒Clock Set(☒Calendar ☐12H ☒24H)
☐Language

☐G-CODE(or SHOWVIEW or PLUSCODE)No. Entry(Option)
☒Clock ☒CH/AV
☒Tape Counter ☒Tape Speed
☒Sleep Time ☒Sound Mute
☒Control Level (☒Vol,☒Bright,☒Cont,☒Color,☐Tint,☒Sharpness)
☒Play/Stop/FF/Rew/Rec/OTR/T-Rec/Pause (Symbol Mark)
☒Auto Tracking/Manual Tracking
☒Index ☒Repeat ☐VPS
☐Tone 1/2 ☐Stereo ☒PDC

G-41.OSD Language

☒Eng ☐Ger ☐Fre ☐Spa ☐Ita ☐Por ☐Jan

OSD Language Setting

☐Eng ☐Ger ☐Fre ☐Spa ☐Ita ☐Por ☐Jan
☒Not Applicable

G-42.Speaker

Position ☒Front ☐Side ☐Bottom
Size 1.5 x 2.5 inches
Imp. 8 ohm x 1 pcs
Output Max 1.5 W
10% 1.0 W (Typical)

G-43.EXT Speaker

☐Yes _____ W Imp _____ ohm ☒No

G-44.Carton

Master Carton: ☐Need ☒No Need
Content: ---- Set
Material: ---- / ---- Corrugated Carton
Dimensions: ---- mm(W) ---- mm(D) ---- mm(H)
Description of Origin ☐Yes ☐No

Gift Box

Material ☒ Double/Brown Corrugated Carton (☐with Photo Label)
☐ Double/White Corrugated Carton (☐with Photo Label)
☐ Double Full Color Carton W/Photo
Dimensions: 423 mm(W) 447 mm(D) 443 mm(H)
Design: As Per BUYER 's
Description of Origin: ☒Yes ☐No

Drop Test Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces
Height ☐25cm ☐31cm ☐46cm ☒62cm ☐80cm

Container Stuffing: 700 Sets / 40' container

GENERAL SPECIFICATIONS

G-45.Accessories

☐Channel Film
☐Dew Caution Sheet
☒Owner's Manual(☐W/Guarantee Card) [English]
☐AC Plug Adaptor
☒Remote Control Unit
☒Quick Set-up Sheet
☐Rod Antenna (☐One Pole ☐Two Pole/☐F-Type ☐DIN Type ☐France Type)
☒Loop Antenna(☐F-Type ☒DIN Type ☐France Type)
☐U/V Mixer
☒Battery (UM- 4 x 2)
☐DC Car Cord (Center+)
☐AC Cord
☒Guarantee Card ☐AV Cord (2Pin-1Pin)
☐Warning Sheet ☒Registration Card
☐Circuit Diagram ☐PTB Sheet
☐Antenna Change Plug
☐300 ohm to 75 ohm Antenna Plug
☐Service Facility List
☐Euro Warranty Information Sheet
☐ESP Card
☒RF Cable

G-46.Other Features

☒Auto Head Cleaning
☒Index Search
☒Auto Tracking
☒Auto Search
☒CH Auto Set-Up/Auto Clock
☐ATS
☐VIDEO PLUS+(SHOWVIEW,G-CODE)
☒PDC
☒HQ (VHS Standard High Quality)
☐VPS
☒Auto Power On, Auto Play, Auto Rewind, Auto Eject,Auto Repeat System
☒Forward / Reverse Picture Search
☐SQPB
☐One Touch Playback
☐CATV
☐Auto CH Memory
☐Anti-Theft
☒TV Auto Shutt off Function
☒T'Text(☒Fast ☐Top ☐Uni)
☒TV Monitor

G-47.Switch

Front

☒Power
☒Channel Up
☒Volume Up
☒Play
☒Channel Down
☒Volume Down
☐Pause/Still
☒F.FWD/Cue
☒Rew/Rev
☐System Select
☒Eject/Stop
☒Rec/OTR
☐One Touch Playback
☒Main Power SW
☒Input Select

Rear

☐Color On/Off (SECAM only)
☐Degauss
☐Main Power SW
☐AC/DC

G-48.Magnetic Field

☒BV : +0.45G	☐BV : +0.35G	☐BV : +0.25G
BH : 0.18G	BH : 0.30G	BH : 0.30G
☐BV : -0.15G	☐BV : -0.25G	☐BV : -0.50G
BH : 0.15G	BH : 0.15G	BH : 0.30G

GENERAL SPECIFICATIONS

G-49.Remote Control

Unit: RC-DM

Power Source: D.C 3 V Battery UM - 4 x 2

Glow in Dark Remocon ☐Yes ☒No

Total 41 Key

☒ 0/AV	☒Ch/Tr/Page Up	☒Power
☒ 1	☒Ch/Tr/Page Down	☒Eject
☒ 2	☒Volume Up	
☒ 3	☒Volume Down	☒Play/Up(/☐Slow)
☒ 4	☒Mute	☒F.FWD/Right
☒ 5	☒Menu	☒Rew/Left
☒ 6	☒Enter/Hold	☒Stop/Down
☒ 7	☒Cancel/Ch Skip/F.T.B.	☒Pause(☒/Still)
☒ 8	☒ATR/Reveal	☒REC/OTR
☒ 9	☒Text/Mix/TV	☒Speed
☒Call	☒Index/Time Text	☐Audio Select
☒TV Monitor	☒Cyan	☒Timer Rec
☒Sleep Timer	☒Red	☒Counter Reset
	☒Yellow	☒Zero Return
	☒Green	

☒Program(☐/Video Plus+ or ShowView)

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

1-1: BACK CABINET (Refer to Fig. 1-1)

1. Remove the 4 screws ①.
2. Remove the 2 screws ② which are used for holding the Back Cabinet.
3. Remove the AC cord from the AC cord hook ③.
4. Remove the Back Cabinet in the direction of arrow.

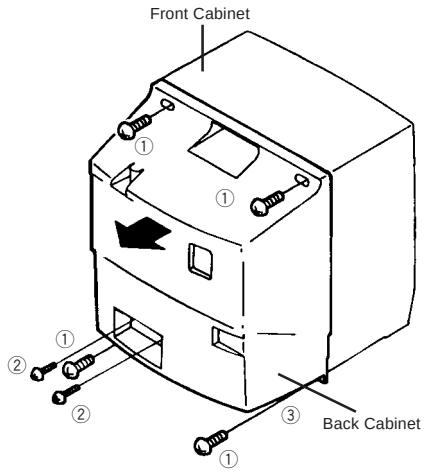


Fig. 1-1

1-2: CRT PCB (Refer to Fig. 1-2)

CAUTION: BEFORE REMOVING THE ANODE CAP, DISCHARGE ELECTRICITY BECAUSE IT CONTAINS HIGH VOLTAGE. BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.

1. Remove the Anode Cap. (Refer to REMOVAL OF ANODE CAP)
2. Disconnect the following connectors: (CP801 and CP850).
3. Remove the CRT PCB in the direction of arrow.

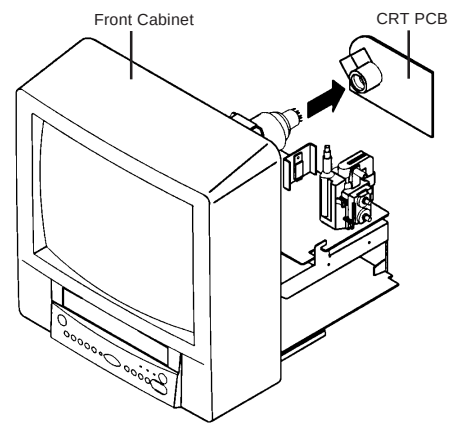


Fig. 1-2

1-3: TV/VCR BLOCK (Refer to Fig. 1-3)

1. Remove the 2 screws ①.
2. Disconnect the following connectors: (CP302, CP351, CP757, CP401, CP501 and CP502).
3. Unlock the support ②.
4. Remove the TV/VCR Block in the direction of arrow.

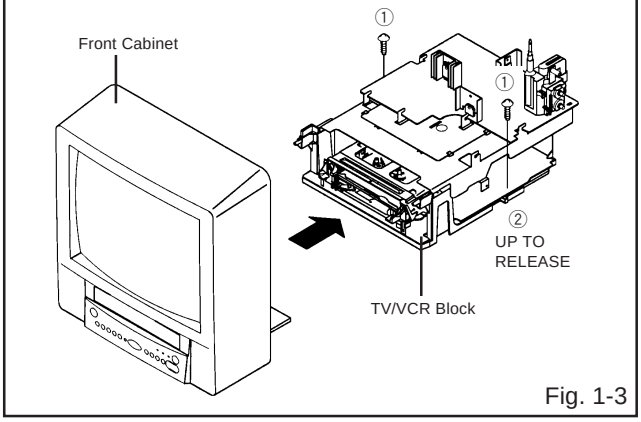


Fig. 1-3

1-4: MAIN PCB (Refer to Fig. 1-4)

1. Remove the screw ①.
2. Remove the Main PCB Holder.
3. Remove the 2 screws ②.
4. Remove the 3 screws ③.
5. Disconnect the following connectors: (CP810 and CP820).
6. Remove the Main PCB in the direction of arrow.

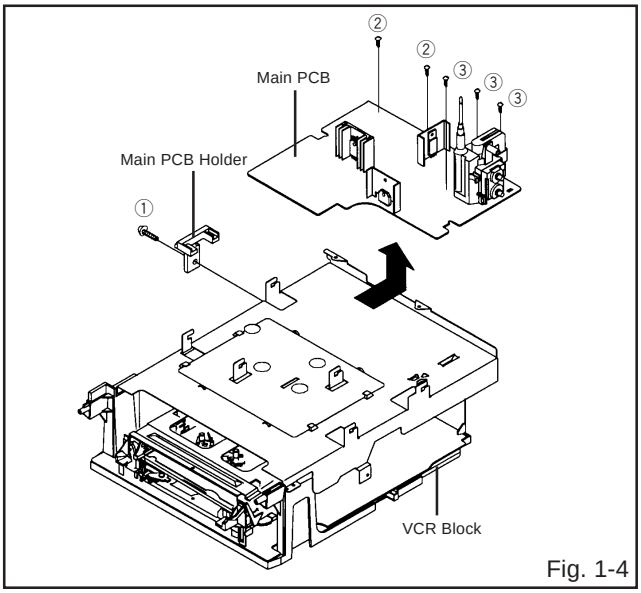


Fig. 1-4

DISASSEMBLY INSTRUCTIONS

1-5: DECK SHIELD PLATE (Refer to Fig. 1-5)

1. Remove the 2 screws ①.
2. Remove the 4 screws ②.
3. Remove the screw ③.
4. Remove the Deck Shield Plate in the direction of arrow (A).
5. Remove the screw ④.
6. Remove the Shield Plate Bottom in the direction of arrow (B).

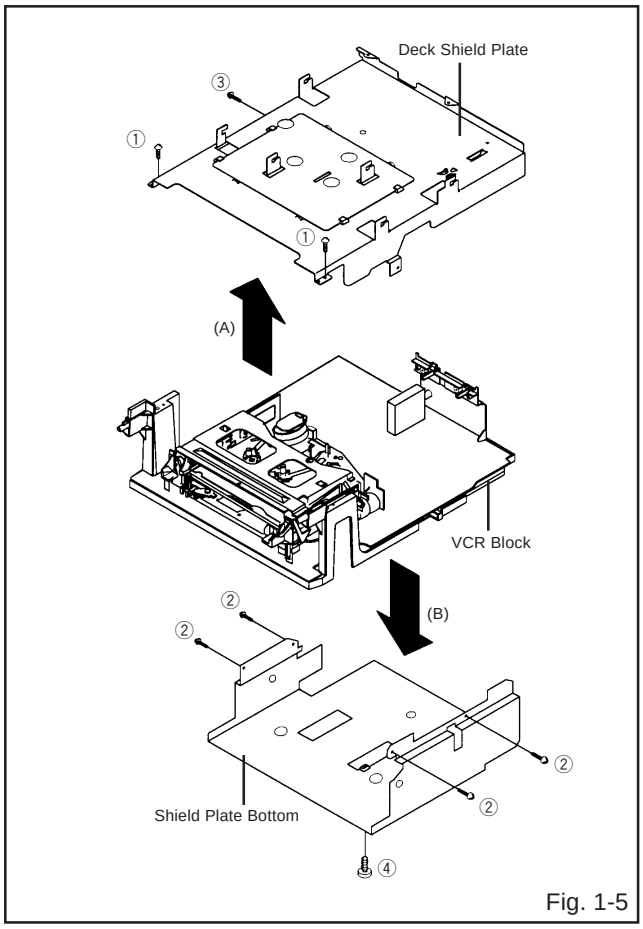


Fig. 1-5

1-6: DECK CHASSIS (Refer to Fig. 1-6)

1. Remove the 3 screws ①.
2. Disconnect the following connectors: (CP1004, CP1005, CP1006, CP4001, CP4004 and CP4005).
3. Remove the Deck Chassis in the direction of arrow.

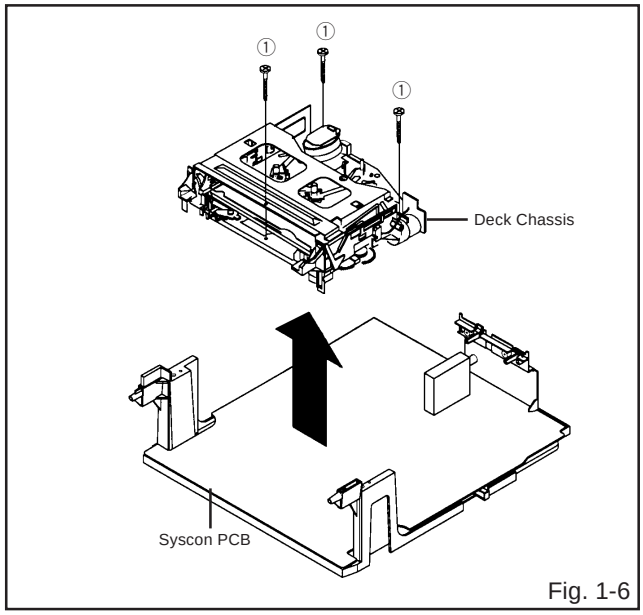


Fig. 1-6

1-7: JACK PLATE AND SYSCON PCB (Refer to Fig. 1-7)

1. Remove the screw ①.
2. Remove the Syscon PCB in the direction of arrow (A).
3. Remove the 2 screws ②.
4. Unlock the 2 supports ③.
5. Remove the Jack Plate in the direction of arrow (B).

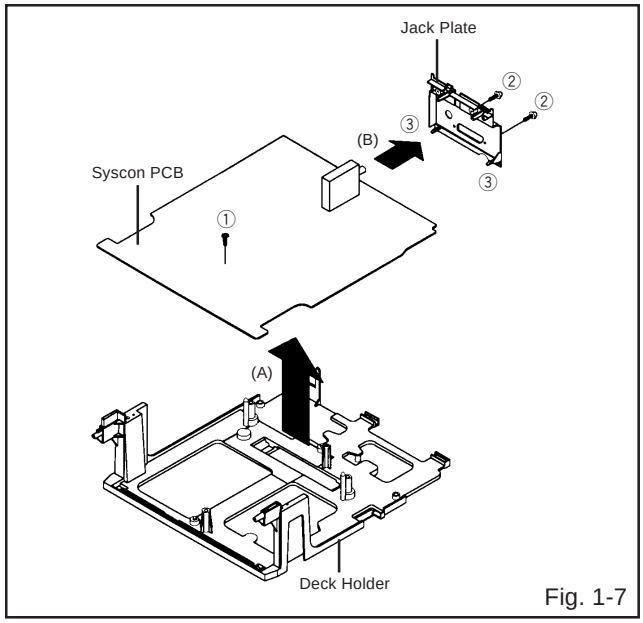


Fig. 1-7

DISASSEMBLY INSTRUCTIONS

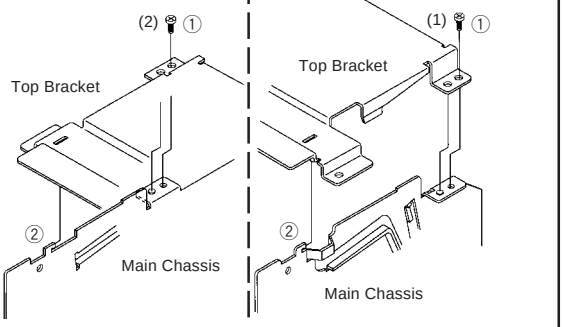
2. REMOVAL OF DECK PARTS

2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Remove the 2 screws ①.
2. Slide the 2 supports ② and remove the Top Bracket.

NOTE

When you install the Top Bracket, install the screw (1) first, then install the screw (2).



• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-1

2-2: FLAP LEVER/TAPE GUIDE R (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the back side.
2. Remove the Polyslider Washer ①.
3. Remove the Flap Lever.
4. Unlock the 3 supports ② and remove the Tape Guide R.

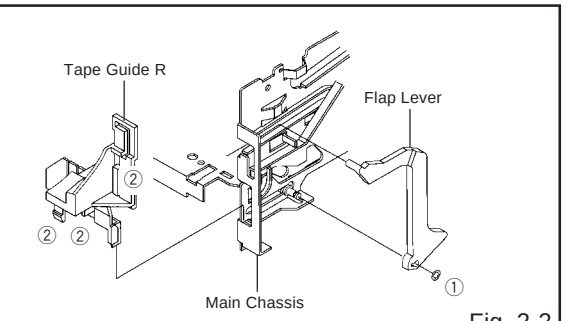
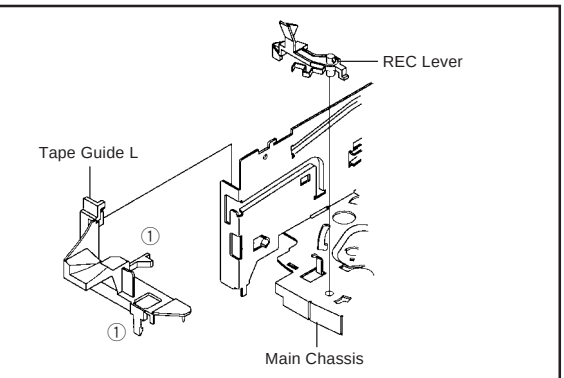


Fig. 2-2

2-3: TAPE GUIDE L (Refer to Fig. 2-3-A)

1. Move the Cassette Holder Ass'y to the back side.
2. Unlock the 2 supports ① and remove the Tape Guide L.
3. Remove the REC Lever. (Recorder only)

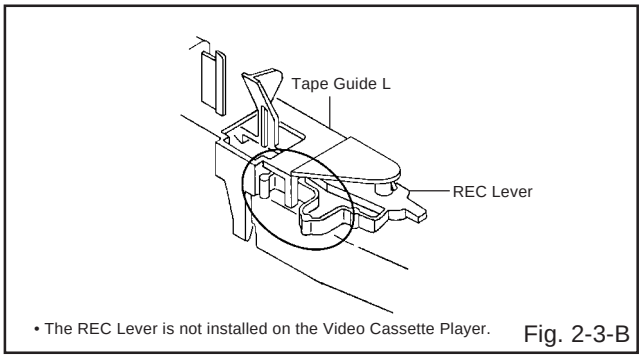


• The REC Lever is not installed on the Video Cassette Player.

Fig. 2-3-A

NOTE

When you install the Tape Guide L, install as shown in the circle of Fig. 2-3-B. **(Refer to Fig. 2-3-B)**



• The REC Lever is not installed on the Video Cassette Player.

Fig. 2-3-B

2-4: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-4)

1. Move the Cassette Holder Ass'y to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.

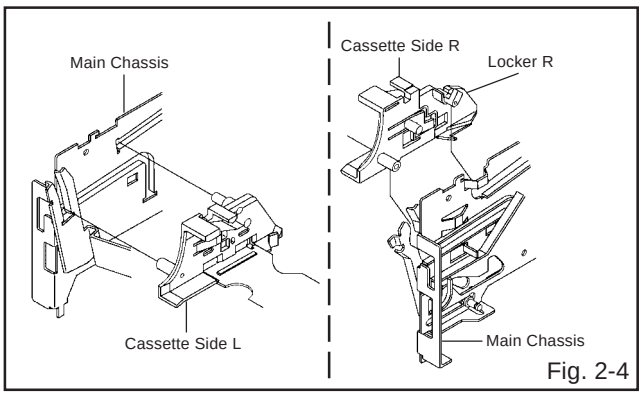


Fig. 2-4

2-5: CASSETTE SIDE L/R (Refer to Fig. 2-5)

1. Unlock the 4 supports ① and then remove the Cassette Side L/R.

NOTE

When you install the Cassette Side R, be sure to move the Locker R after installing.

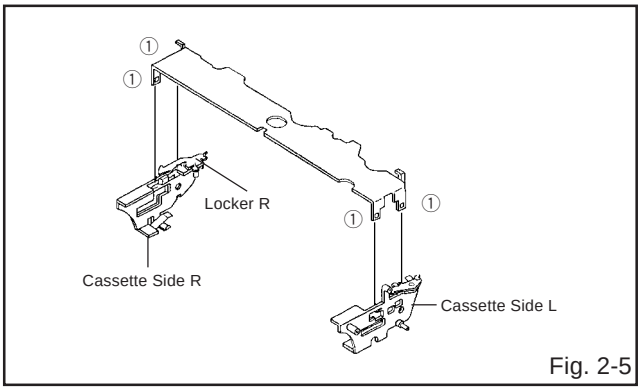


Fig. 2-5

DISASSEMBLY INSTRUCTIONS

2-6: LINK ASS'Y (Refer to Fig. 2-6)

1. Set the Link Ass'y to the Eject position.
2. Remove the (A) side of the Link Ass'y first, then remove the (B) side.

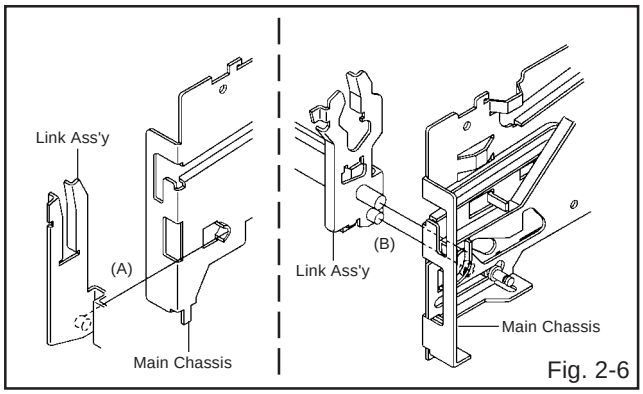
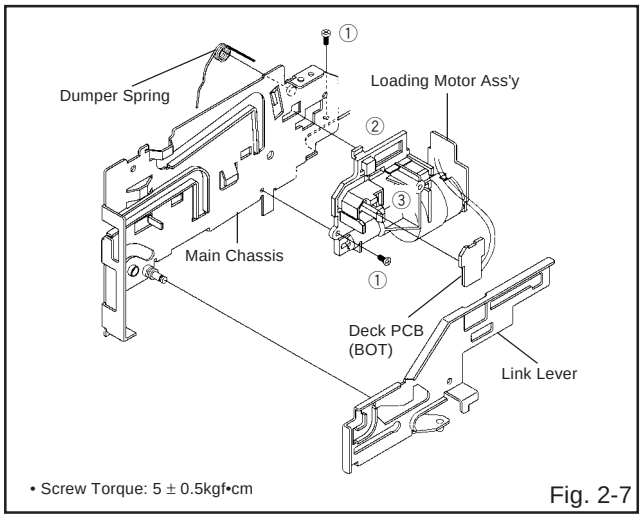


Fig. 2-6

2-7: LOADING MOTOR ASS'Y (Refer to Fig. 2-7)

1. Remove the Link Lever.
2. Remove the Dumper Spring.
3. Remove the 2 screws ①.
4. Unlock the support ② and remove the Loading Motor Ass'y.
5. Unlock the 2 supports ③ and remove the Deck PCB (BOT).



• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-7

2-8: SENSOR COVER L3 (Refer to Fig. 2-8)

1. Unlock the support ① and remove the Sensor Cover L3.

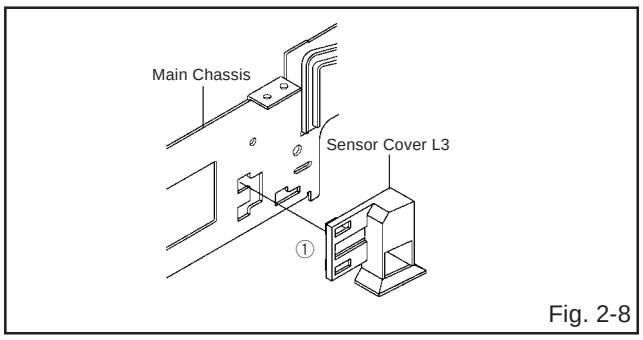


Fig. 2-8

2-9: TENSION ASS'Y (Refer to Fig. 2-9-A)

1. Move the Inclined S Ass'y to the back side.
2. Remove the Tension Spring.
3. Unlock the support ① and remove the Tension Arm Ass'y.
4. Remove the Tension Adjust.
5. Unlock the 2 supports ② and remove the Tension Band Ass'y.
6. Unlock the support ③ and remove the Tension Holder.
7. Remove the SS Brake Spring.
8. Remove the SS Arm Brake.

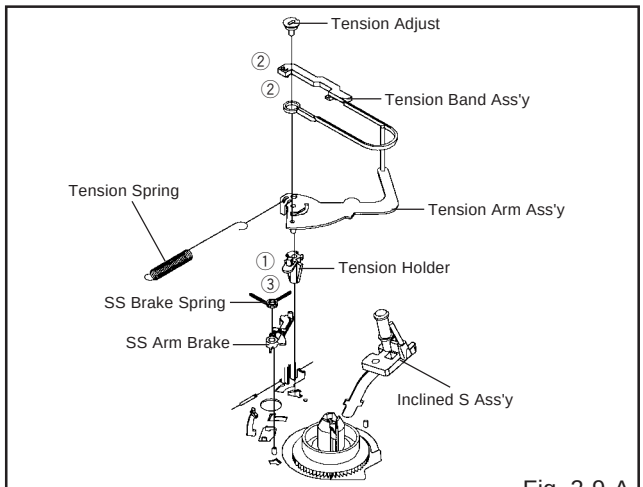


Fig. 2-9-A

NOTE

When you install the Tension Adjust, install as shown in Fig. 2-9-B. **(Refer to Fig. 2-9-B)**

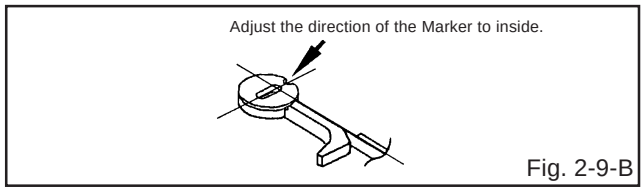


Fig. 2-9-B

2-10: T BRAKE ASS'Y (Refer to Fig. 2-10)

1. Remove the T Brake Spring.
2. Remove the T Brake Ass'y.

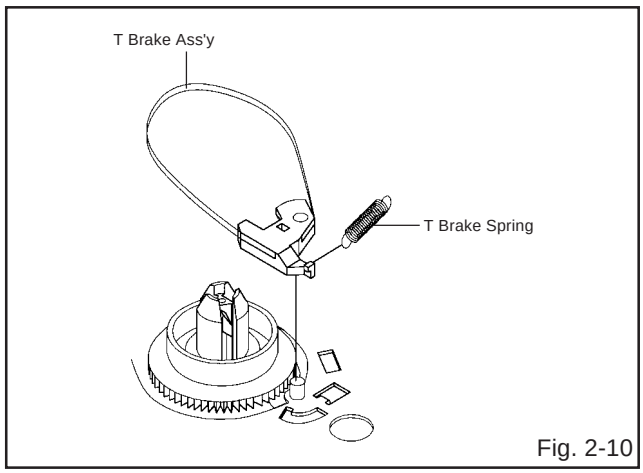


Fig. 2-10

DISASSEMBLY INSTRUCTIONS

2-11: S REEL/T REEL (Refer to Fig. 2-11)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.

NOTE

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may be remained on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch the section "A" of S Reel and T Reel. (Use gloves.) **(Refer to Fig. 2-11)** Do not adhere the stains on it.
5. When you install the reel, clean the shaft and oil it. (If you do not oil, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. **(Refer to MECHANICAL ADJUSTMENT)**

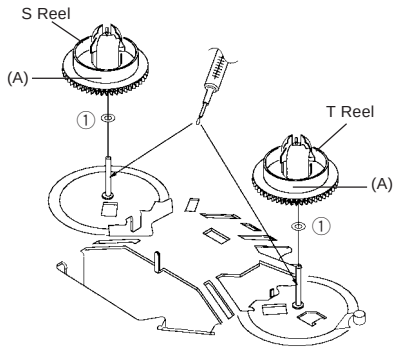
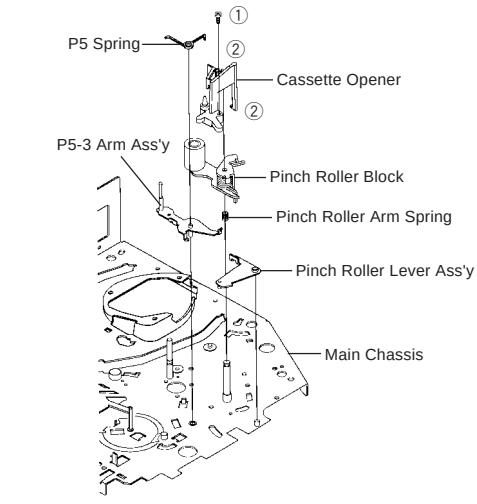


Fig. 2-11

2-12: PINCH ROLLER BLOCK/P5-3 ARM ASS'Y (Refer to Fig. 2-12-A)

1. Remove the P5 Spring.
2. Remove the screw ①.
3. Unlock the 2 supports ② and remove the Cassette Opener.
4. Remove the Pinch Roller Block, Pinch Roller Arm Spring, Pinch Roller Lever Ass'y and P5-3 Arm Ass'y.



• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-12-A

NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. When you install the Pinch Roller Block, install as shown in the circle of Fig. 2-12-B. **(Refer to Fig. 2-12-B)**

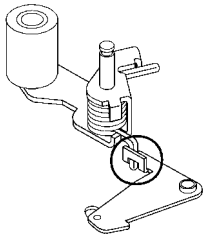


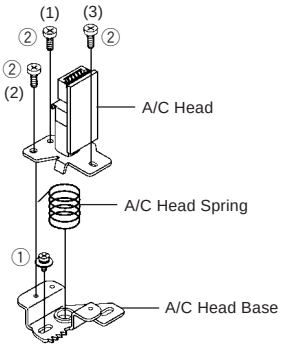
Fig. 2-12-B

2-13: A/C HEAD (Refer to Fig. 2-13-A)

1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

NOTE

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-13-B. **(Refer to Fig. 2-13-B)**
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).



• Screw Torque: 4 ± 0.5kgf•cm (Screw ①)

Fig. 2-13-A

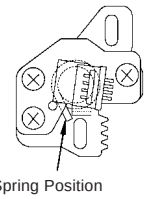
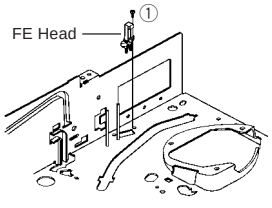


Fig. 2-13-B

2-14: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-14)

1. Remove the screw ①.
2. Remove the FE Head.



• The FE Head is not installed on the Video Cassette Player.
• Screw Torque: 4 ± 0.5kgf•cm

Fig. 2-14

DISASSEMBLY INSTRUCTIONS

2-15: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-15)

1. Unlock the support ① and remove the AHC Ass'y.
2. Remove the 3 screws ②.
3. Remove the Cylinder Unit Ass'y.

NOTE

When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.

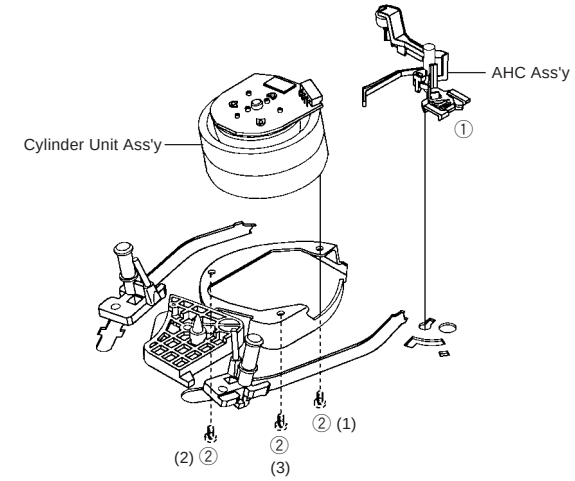


Fig. 2-15

2-16: CAPSTAN DD UNIT (Refer to Fig. 2-16)

1. Remove the Capstan Belt.
2. Remove the 3 screws ①.
3. Remove the Capstan DD Unit.

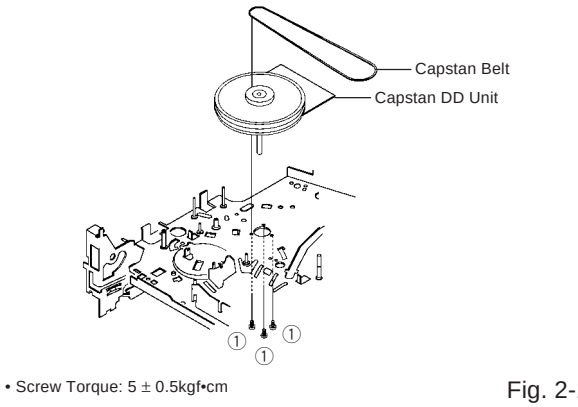


Fig. 2-16

2-17: MIDDLE GEAR/MAIN CAM (Refer to Fig. 2-17-A)

1. Remove the Polyslider Washer ①, then remove the Middle Gear.
2. Remove the E-Ring, then remove the Main Cam, P5 Cam and Pinch Roller Cam.
3. Remove the Polyslider Washer ②, then remove the Joint Gear.

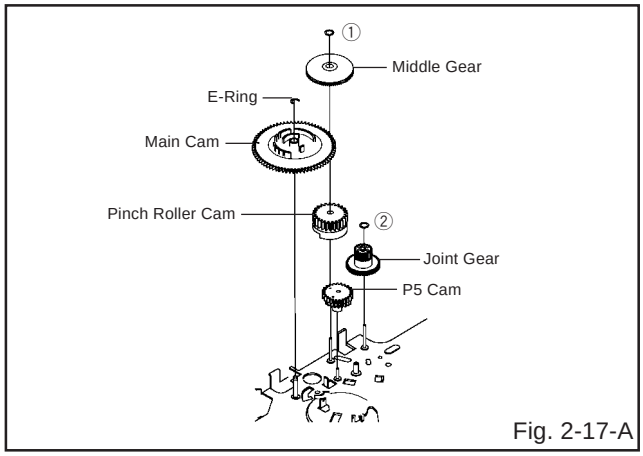


Fig. 2-17-A

NOTE

When you install the Pinch Roller Cam, P5 Cam and Main Cam, align each marker. **(Refer to Fig. 2-17-B)**

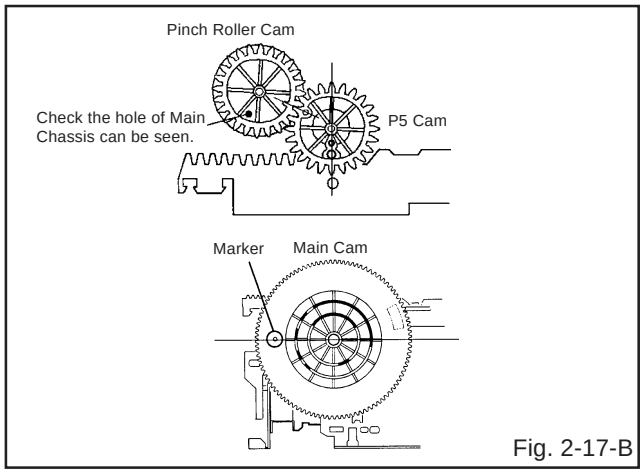


Fig. 2-17-B

2-18: CLUTCH ASS'Y (Refer to Fig. 2-18)

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y, Ring Spring and Coupling Gear.
3. Unlock the 2 supports ② and remove the Clutch Lever.

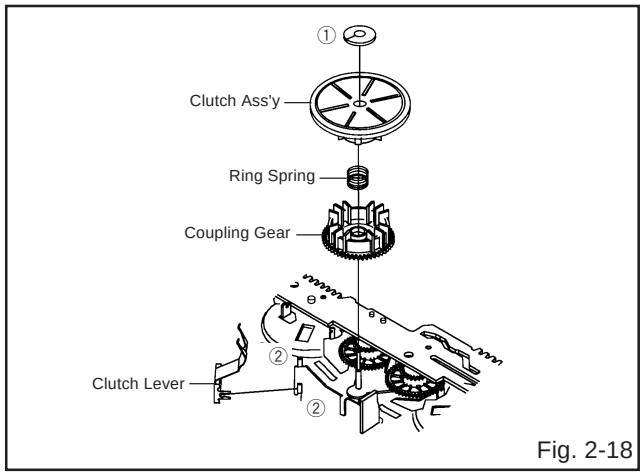
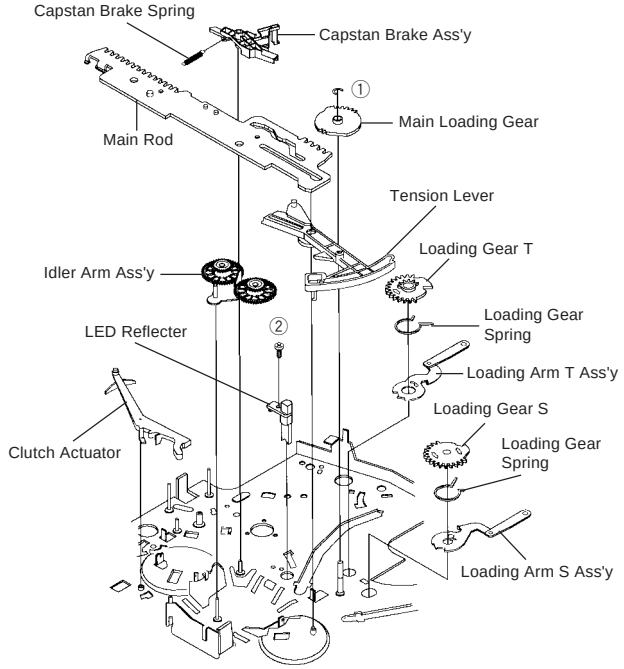


Fig. 2-18

DISASSEMBLY INSTRUCTIONS

2-19: LOADING GEAR S/T ASS'Y (Refer to Fig. 2-19-A)

1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Capstan Brake Spring.
3. Slide the Main Rod and remove the Capstan Brake Ass'y.
4. Remove the Main Rod, Tension Lever, Clutch Actuator, Idler Arm Ass'y.
5. Remove the screw ②.
6. Remove the LED Reflecter.
7. Remove the Loading Arm S Ass'y and Loading Arm T Ass'y.
8. Remove the Loading Gear S and Loading Gear T.
9. Remove the Loading Gear Spring.



• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-19-A

NOTES

1. When you install the Loading Arm S Ass'y, Loading Arm T Ass'y and Main Loading Gear, align each marker. **(Refer to Fig. 2-19-B)**

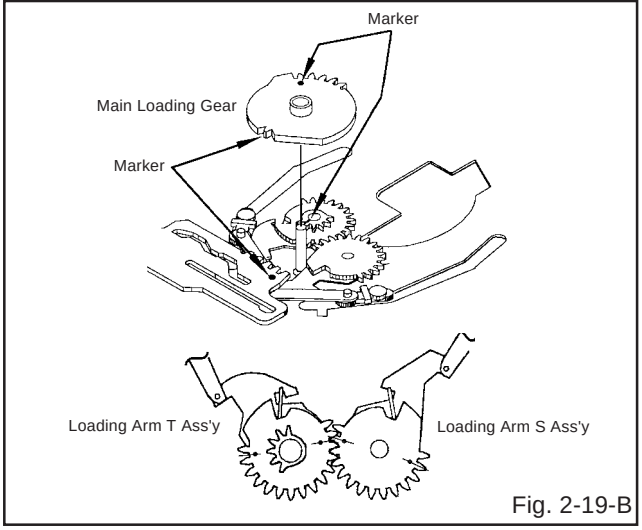


Fig. 2-19-B

2. When you install the Clutch Actuator, install as shown in the circle of Fig. 2-19-C. **(Refer to Fig. 2-19-C)**

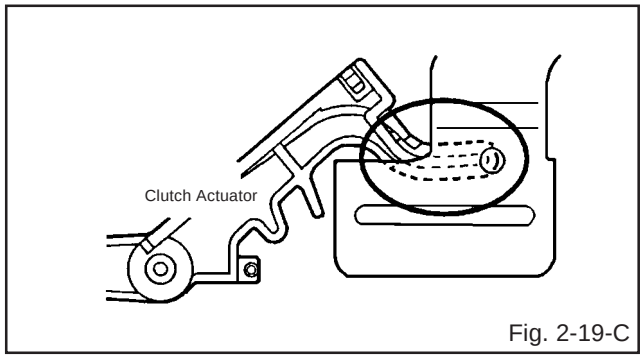


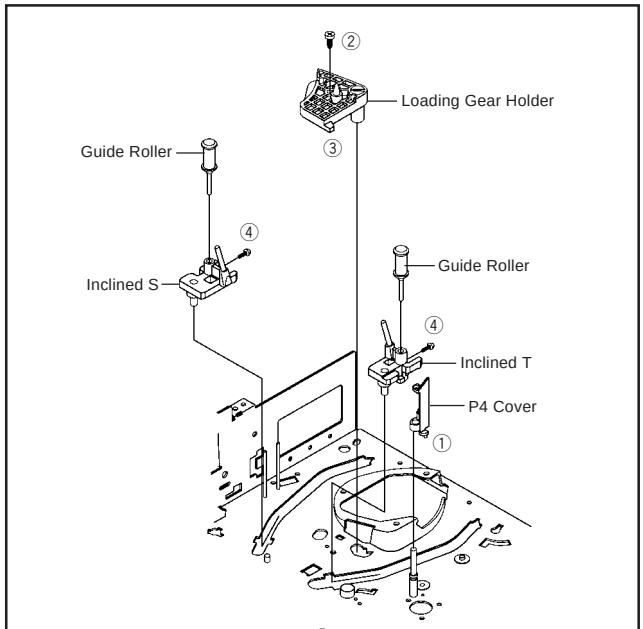
Fig. 2-19-C

2-20: INCLINED S/T ASS'Y (Refer to Fig. 2-20)

1. Unlock the support ① and remove the P4 Cover.
2. Remove the screw ②.
3. Unlock the support ③ and remove the Loading Gear Holder.
4. Remove the Inclined S.
5. Remove the Inclined T.
6. Remove the 2 screws ④, then remove the Guide Roller.

NOTE

Do not touch the roller of Guide Roller.



• Screw Torque: 5 ± 0.2kgf•cm (Screw ②)
• Screw Torque: 0.7 ± 0.2kgf•cm (Screw ④)

Fig. 2-20

DISASSEMBLY INSTRUCTIONS

3. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

* After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
* Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap. **(Refer to Fig. 3-1.)**
   Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground.
   While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.
   A cracking noise will be heard as the voltage is discharged.

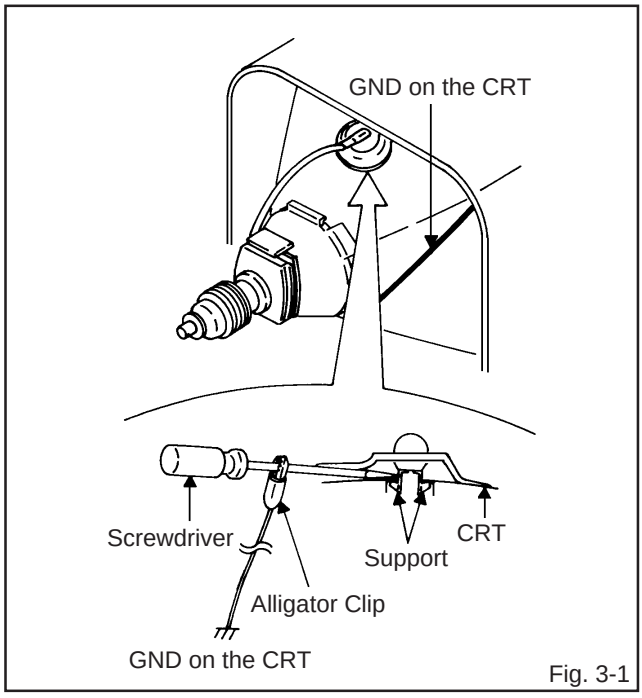


Fig. 3-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. **(Refer to Fig. 3-2.)**

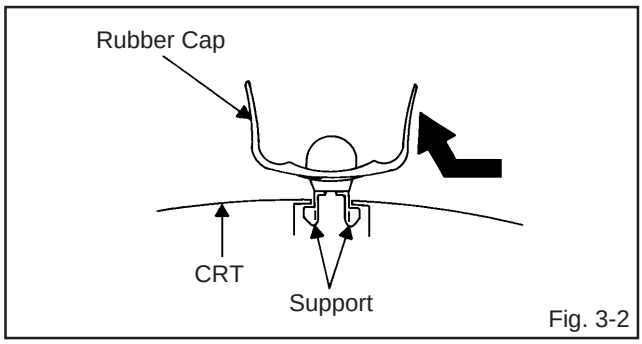


Fig. 3-2

3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

1. Clean the spot where the cap was located with a small amount of alcohol. **(Refer to Fig. 3-3.)**

NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

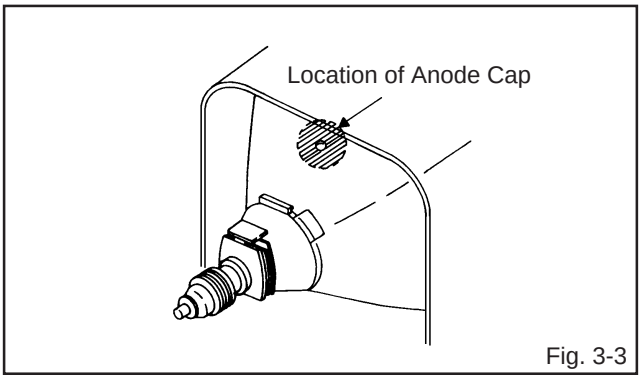


Fig. 3-3

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. **(Refer to Fig. 3-4.)**

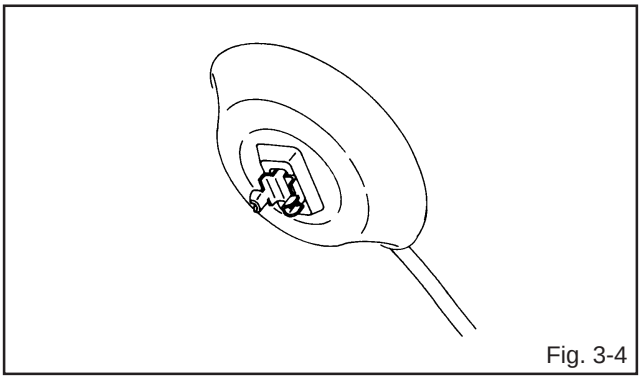


Fig. 3-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in **Fig. 3-5**.

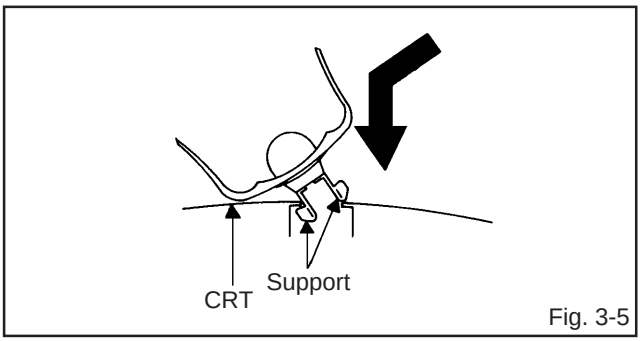


Fig. 3-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

KEY TO ABBREVIATIONS

A	**A/C**	:	Audio/Control
	ACC	:	Automatic Color Control
	AE	:	Audio Erase
	AFC	:	Automatic Frequency Control
	AFT	:	Automatic Fine Tuning
	AFT DET	:	Automatic Fine Tuning Detect
	AGC	:	Automatic Gain Control
	AMP	:	Amplifier
	ANT	:	Antenna
	A.PB	:	Audio Playback
	APC	:	Automatic Phase Control
	ASS'Y	:	Assembly
	AT	:	All Time
	AUTO	:	Automatic
	A/V	:	Audio/Video
B	**BGP**	:	Burst Gate Pulse
	BOT	:	Beginning of Tape
	BPF	:	Bandpass Filter
	BRAKE SOL	:	Brake Solenoid
	BUFF	:	Buffer
	B/W	:	Black and White
C	**C**	:	Capacitance, Collector
	CASE	:	Cassette
	CAP	:	Capstan
	CARR	:	Carrier
	CH	:	Channel
	CLK	:	Clock
	CLOCK (SY-SE)	:	Clock (Syscon to Servo)
	COMB	:	Combination, Comb Filter
	CONV	:	Converter
	CPM	:	Capstan Motor
	CTL	:	Control
	CYL	:	Cylinder
	CYL-M	:	Cylinder-Motor
	CYL SENS	:	Cylinder-Sensor
D	**DATA (SY-CE)**	:	Data (Syscon to Servo)
	dB	:	Decibel
	DC	:	Direct Current
	DD Unit	:	Direct Drive Motor Unit
	DEMOD	:	Demodulator
	DET	:	Detector
	DEV	:	Deviation
E	**E**	:	Emitter
	EF	:	Emitter Follower
	EMPH	:	Emphasis
	ENC	:	Encoder
	ENV	:	Envelope
	EOT	:	End of Tape
	EQ	:	Equalizer
	EXT	:	External
F	**F**	:	Fuse
	FBC	:	Feed Back Clamp
	FE	:	Full Erase
	FF	:	Fast Forward, Flipflop
	FG	:	Frequency Generator
	FL SW	:	Front Loading Switch
	FM	:	Frequency Modulation
	FSC	:	Frequency Sub Carrier
	FWD	:	Forward
G	**GEN**	:	Generator
	GND	:	Ground
H	**H.P.F**	:	High Pass Filter
	H.SW	:	Head Switch
	Hz	:	Hertz
I	**IC**	:	Integrated Circuit
	IF	:	Intermediate Frequency
	IND	:	Indicator
	INV	:	Inverter
K	**KIL**	:	Killer
L	**L**	:	Left
	LED	:	Light Emitting Diode
	LIMIT AMP	:	Limiter Amplifier
	LM, LDM	:	Loading Motor
	LP	:	Long Play
	L.P.F	:	Low Pass Filter
	LUMI.	:	Luminance
M	**M**	:	Motor
	MAX	:	Maximum
	MINI	:	Minimum
	MIX	:	Mixer, mixing
	MM	:	Monostable Multivibrator
	MOD	:	Modulator, Modulation
	MPX	:	Multiplexer, Multiplex
	MS SW	:	Mecha State Switch
N	**NC**	:	Non Connection
	NR	:	Noise Reduction
O	**OSC**	:	Oscillator
	OPE	:	Operation
P	**PB**	:	Playback
	PB CTL	:	Playback Control
	PB-C	:	Playback-Chrominance
	PB-Y	:	Playback-Luminance
	PCB	:	Printed Circuit Board
	P. CON	:	Power Control
	PD	:	Phase Detector
	PG	:	Pulse Generator
	P-P	:	Peak-to Peak
R	**R**	:	Right
	REC	:	Recording
	REC-C	:	Recording-Chrominance
	REC-Y	:	Recording-Luminance
	REEL BRK	:	Reel Brake
	REEL S	:	Reel Sensor
	REF	:	Reference
	REG	:	Regulated, Regulator
	REW	:	Rewind
	REV, RVS	:	Reverse
	RF	:	Radio Frequency
	RMC	:	Remote Control
	RY	:	Relay
S	**S. CLK**	:	Serial Clock
	S. COM	:	Sensor Common
	S. DATA	:	Serial Data
	SEG	:	Segment
	SEL	:	Select, Selector
	SENS	:	Sensor
	SER	:	Search Mode
	SI	:	Serial Input
	SIF	:	Sound Intermediate Frequency
	SO	:	Serial Output
	SOL	:	Solenoid
	SP	:	Standard Play
	STB	:	Serial Strobe
	SW	:	Switch

KEY TO ABBREVIATIONS

S	**SYNC**	:	Synchronization
	SYNC SEP	:	Sync Separator, Separation
T	**TR**	:	Transistor
	TRAC	:	Tracking
	TRICK PB	:	Trick Playback
	TP	:	Test Point
U	**UNREG**	:	Unregulated
V	**V**	:	Volt
	VCO	:	Voltage Controlled Oscillator
	VIF	:	Video Intermediate Frequency
	VP	:	Vertical Pulse, Voltage Display
	V.PB	:	Video Playback
	VR	:	Variable Resistor
	V.REC	:	Video Recording
	VSF	:	Visual Search Fast Forward
	VSR	:	Visual Search Rewind
	VSS	:	Voltage Super Source
	V-SYNC	:	Vertical-Synchronization
	VT	:	Voltage Tuning
X	**X'TAL**	:	Crystal
Y	**Y/C**	:	Luminance/Chrominance

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.

To enter SERVICE MODE, unplug AC cord till lost actual clock time. Then press and hold Vol (-) button of main unit and remocon key for more than 2 seconds.

The both pressing of set key and remote control key will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 30 minutes before Power On or alternatively, discharge backup capacitor.

Set Key	Remocon Key	Operations
VOL. (-) MIN	1	Initialization of the factory. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	2	Horizontal position adjustment of OSD. NOTE: Also can be adjusted by using the Adjustment MENU. Refer to the "ELECTRICAL ADJUSTMENT" (OSD HORIZONTAL).
VOL. (-) MIN	3	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	4	Adjust the PG SHIFTER manually. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	5	Adjusting of the Tracking to the center position. NOTE: Also can be adjusted by pressing the ATR button for more than 2 seconds during PLAY.
VOL. (-) MIN	6	POWER ON total hours and PLAY/REC total hours are displayed on the screen. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF USING HOURS). Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "NOTE FOR THE REPLACING OF MEMORY IC".
VOL. (-) MIN	7	Releasing of PROTECTION PASSWORD.
VOL. (-) MIN	8	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

Method	Operations
Press the ATR button on the remote control for more than 2 seconds during PLAY.	Adjusting of the Tracking to the center position. Refer to the "MECHANICAL ADJUSTMENT" (GUIDE ROLLER) and "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
Make the short circuit between the test point of SERVICE and the GND.	The EOT/BOT/Reel sensor do not work at this moment. Refer to the "PREPARATION FOR SERVICING"

PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage. Unless maintenance is properly carried out, the following service intervals may be quite shortened as harmful effects may be had on other parts. Also, long term storage or misuse may cause transformation and aging of rubber parts.

Time / Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	3,000 hours	Notes
Audio Control Head	■	■	■	■	■	Clean those parts in contact with the tape.
Full Erase Head (Recorder only)	■	■	■	■	■	
Capstan Belt			■	■	●	Clean the rubber, and parts which the rubber touches.
Pinch Roller	■	■	■	■	■ ●	
Capstan DD Unit					●	
Loading Motor					●	
Tension Band					●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	■	■	■	●	Clean the Head

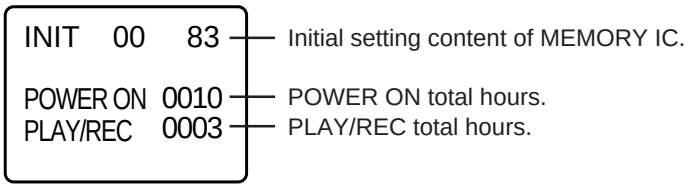
■ : Clean
● : Replace

CONFIRMATION OF USING HOURS

POWER ON total hours and PLAY/REC total hours can be checked on the screen.
Total hours are displayed in 16 system of notation.

NOTE: The confirmation of using hours will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 30 minutes before Power On or alternatively, discharge backup capacitor.

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and the Channel button **(6)** on the remote control for more than 2 seconds.
3. After the confirmation of using hours, turn off the power.



(16 x 16 x 16 x thousands digit value) + (16 x 16 x hundreds digit value) + (16 x tens digit value) + (ones digit value)

PREVENTIVE CHECKS AND SERVICE INTERVALS

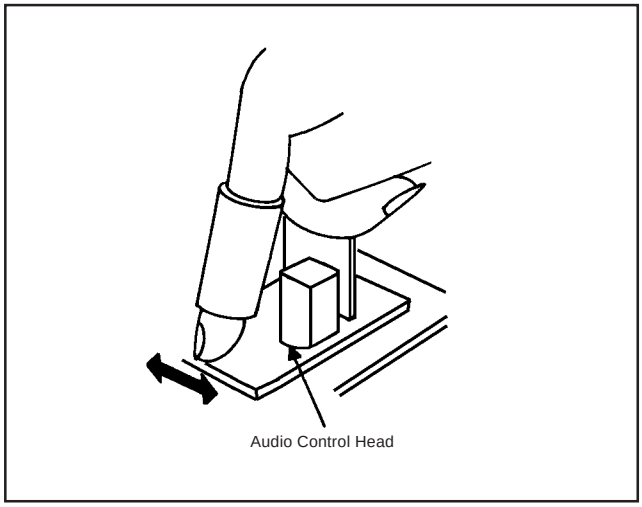
CLEANING

NOTE

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

1. AUDIO CONTROL HEAD

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol and clean the audio control head by wiping it horizontally. Clean the full erase head in the same manner. **(Refer to the figure below.)**



2. TAPE RUNNING SYSTEM

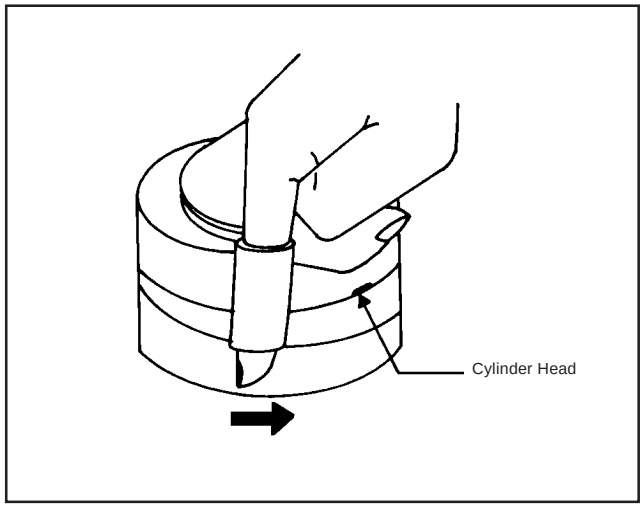
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). **(Refer to the figure below.)**

NOTE

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head.
Use the chamois one by one.



NOTE FOR THE REPLACING OF MEMORY IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

NOTE: Initial Data setting will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 30 minutes before Power On or alternatively, discharge backup capacitor.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	40	1E	07	80	6A	02	00	27	C0	01	12	31	04	0D	40	42
10	D0	05	63	65	66	06	40	00	05	00	18	00	00	00	00	00
20	01	0B	01	00	04	6A	00	F5	77	A0	68	00	00	5F	05	C0
30	52	F0	00	00	00	00	00	5F	01	F0	01	F0	0E	00	01	6C
40	2B	21	15	50	A0	C4	20	08	BF	10	00	00	00	00	00	00

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control for more than 2 seconds. ADDRESS and DATA should appear as FIG 1.

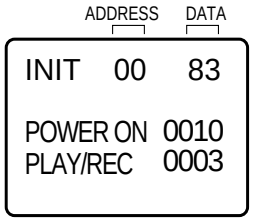
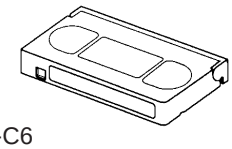
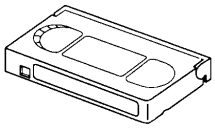
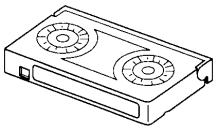
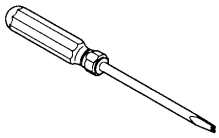
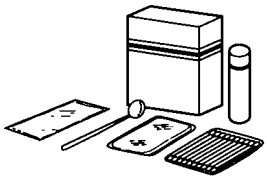
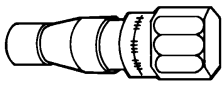
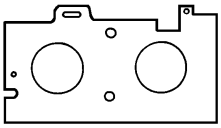
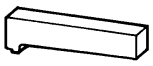
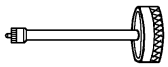
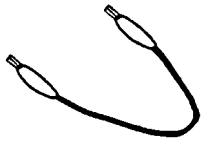
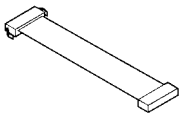
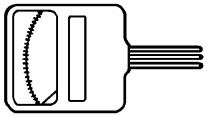


Fig. 1

3. ADDRESS is now selected and should "blink". Using the PLAY or STOP button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using PLAY or STOP button until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

The unit will now have the correct DATA for the new MEMORY IC.

SERVICING FIXTURES AND TOOLS

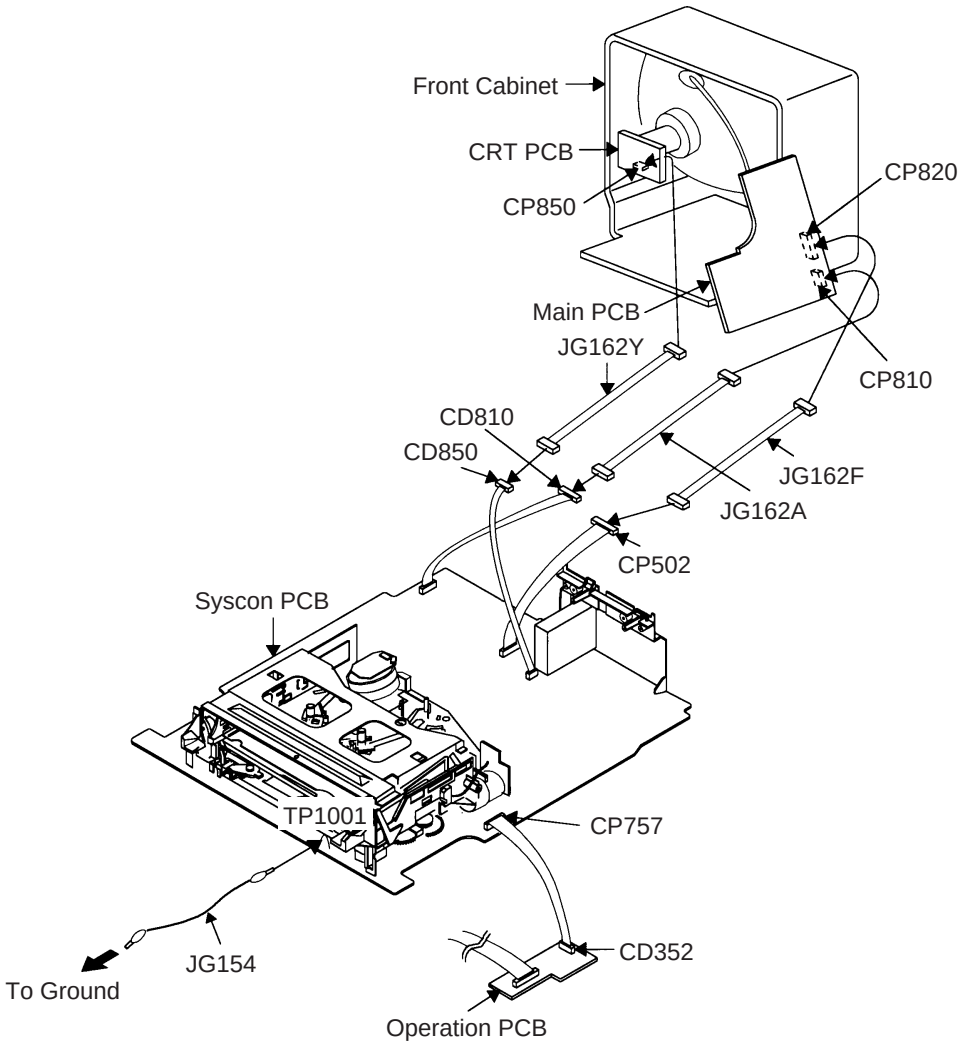
Alignment Tape  ST-C6 ST-C7	Back tension cassette gauge  70909103	Torque cassette gauge (KT-300NR)  70909199	Taper nut driver  70909228
VTR cleaning kit 	VTR lubrication kit 	Grease 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 
JG022 Master Plane 	JG024A Reel Disk Height Adjustment Jig 	JG153 X Value Adjustment Screwdriver 	JG154 Cable 
JG162A Cable (8 Pins) JG162F Cable (13 Pins) JG162Y Cable (5 Pins) 	Tentelometer 		

Part No.	Remarks
JG002B	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	Brake Torque (T Reel Ass'y)
JG002F	VSR Torque, Brake Torque (S Reel)
JG153	X Value Adjustment
JG022/JG024A	Reel Disk Height Adjustment
JG154	Used to connect the test point of SERVICE and GROUND
JG162A/JG162F	Used to connect the Syscon PCB and Main PCB
JG162Y	Used to connect the Syscon PCB and CRT PCB

PREPARATION FOR SERVICING

How to use the Servicing Fixture

1. Unplug the connector CP351, CP757 and CP302, then remove the TV/VCR Block from the set.
2. Unplug the connector CP810, CP820 and CP850, then remove the Main PCB from the VCR Block.
3. Connect as shown in the below figure using the Service Fixture.
   • Connect the Syscon PCB to the Main PCB with the cable JG162A and JG162F.
   • Connect the Syscon PCB to the CRT PCB with the cable JG162Y.
4. Remove the Operation PCB from the set, then connect it with the Syscon PCB.
   If necessary, connect CP351. (Front A/V Jack Input Terminal)
5. Short circuit between **TP1001** and **GND** with the cable JG154.
   (The EOT, BOT and Reel Sensor do not work at this moment.)
6. At that time, the STOP/EJECT button is available to insert and eject the Cassette Tape.



MECHANICAL ADJUSTMENTS

1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)
- When you activate the deck without the Cassette Holder, short circuit between **TP1001** and **GND**. **(Refer to ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE)** In this condition the BOT/EOT/Reel Sensor will not function.

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

1. Turn on the power and set to the STOP mode.
2. Set the master plane **(JG022)** and reel disk height adjustment jig **(JG024A)** on the mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A**.
3. Confirm that "A" of the reel disk is lower than "B" of the reel disk height adjustment jig **(JG024A)**, and is higher than "C". If it is not enough height, adjust to 10(+0.2, -0) mm with the height adjustment washer.
4. Adjust the other reel in the same way.

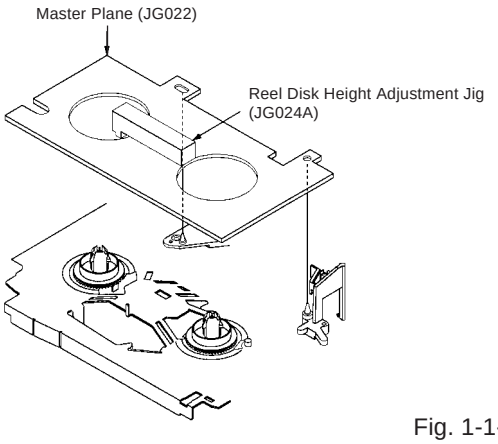


Fig. 1-1-A

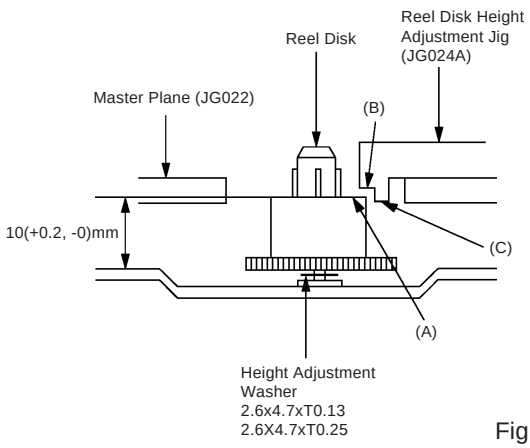


Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

1. Set to the PLAY mode.
2. Adjust the Tension Adjust until the edge of the Tension Arm is positioning within 0.5mm range from the standard line center of Main Chassis.
   After this adjustment, confirm that the cut position is located in "A" area as shown in **Fig. 1-2-B**. If it is located in "B" area, adjust again.
3. While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

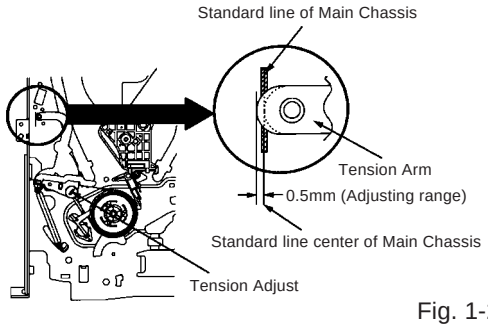


Fig. 1-2-A

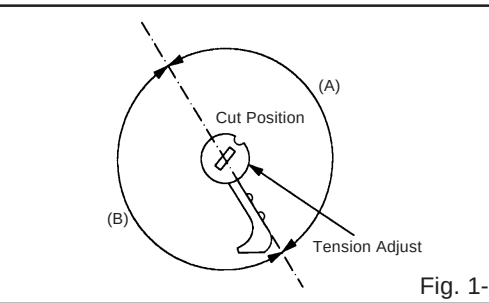


Fig. 1-2-B

1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

1. Load a video tape (E-180) recorded in standard speed mode. Set the unit to the PLAY mode.
2. Install the tentelometer as shown in **Fig. 1-3**. Confirm that the meter indicates 20 ± 2gf in the beginning of playback.

• USING A CASSETTE TYPE TORQUE TAPE **(KT-300NR)**

1. After confirmation and adjustment of Tension Post position **(Refer to item 1-2)**, load the cassette type torque tape **(KT-300NR)** and set to the PLAY mode.
2. Confirm that the right meter of the torque tape indicates 60~110gf•cm during playback in SP mode.
3. Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.

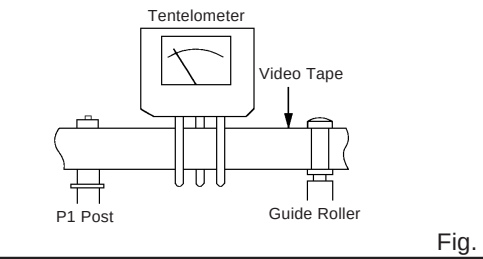


Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

1. Operate within 4~5 seconds after the reel disk begins to turn.
2. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Set to the Rewind mode. **(Refer to Fig.1-4)**
3. Then, confirm that it indicates 120~180gf•cm.

NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) **(Refer to Fig. 1-4)**

1. Set to the STOP mode.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Turn the Torque Gauge **(JG002F)** clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

(T Reel Brake) **(Refer to Fig. 1-4)**

1. Set to the STOP mode.
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge **(JG002E)** and Adapter **(JG002B)** on the T reel. Turn the Torque Gauge **(JG002E)** counterclockwise.
4. Then, confirm that it indicates 45~70gf•cm.

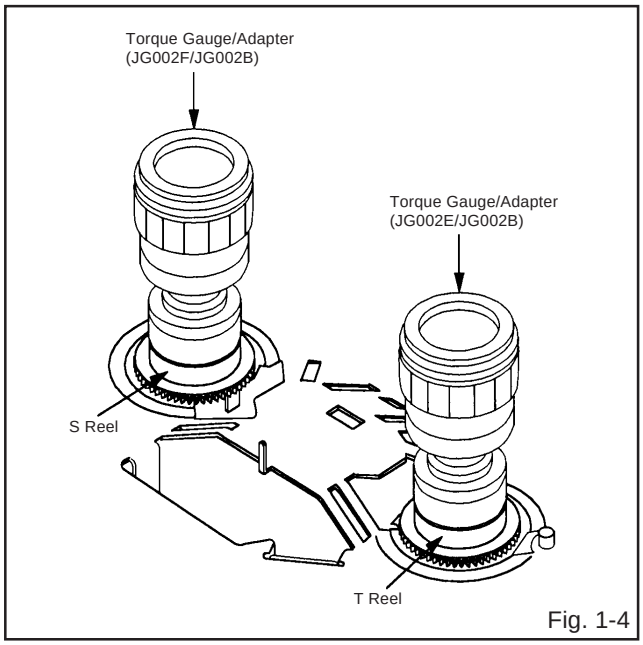


Fig. 1-4

NOTE

If the torque is out of the range, replace the following parts.

Check item	Replacement Part
1-4	Idler Ass'y/Clutch Ass'y
1-5	T Brake Spring/Tension Spring

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape.
2. Connect CH-1 of the oscilloscope to **TP4002 (Envelope)** and CH-2 to **TP4001 (SW Pulse)**.
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. **(Refer to Fig. 2-1-A)**
5. When observing the envelope, adjust the Taper Nut Driver slightly until the envelope will be flat.
   Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in **Fig. 2-1-B**, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback.
   (Refer to the ELECTRICAL ADJUSTMENTS)

NOTE

After adjustment, confirm and adjust A/C head.
(Refer to item 2-2)

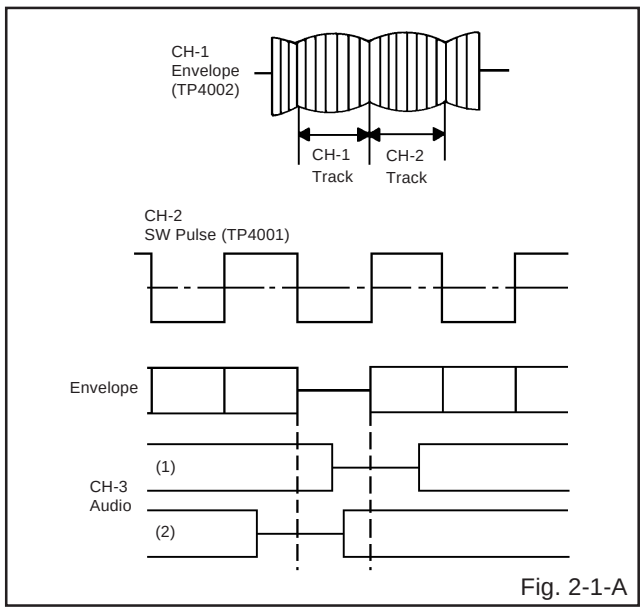


Fig. 2-1-A

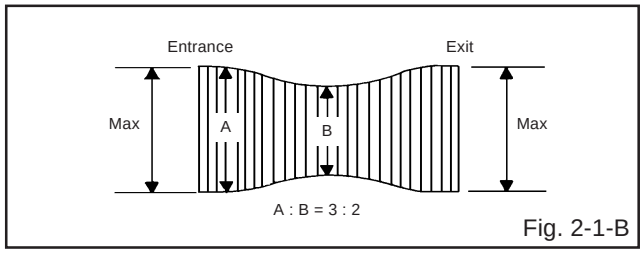


Fig. 2-1-B

MECHANICAL ADJUSTMENTS

2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/ CONTROL HEAD

When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape.
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Post as shown in **Fig. 2-2-A**.
   a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
   b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/ Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
   c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

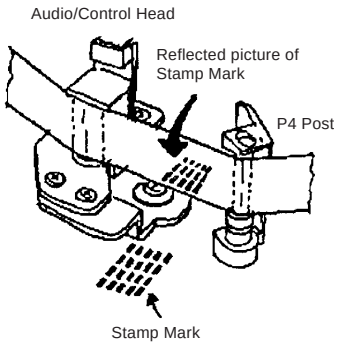


Fig. 2-2-A

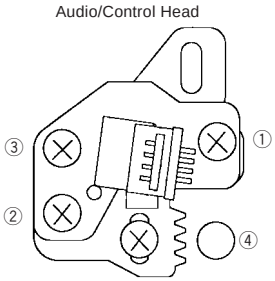


Fig. 2-2-B

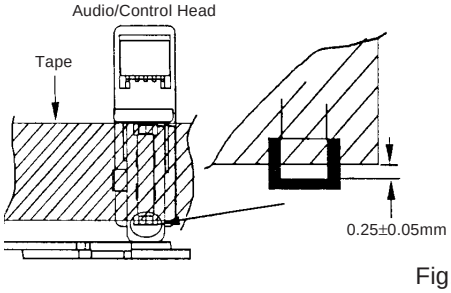


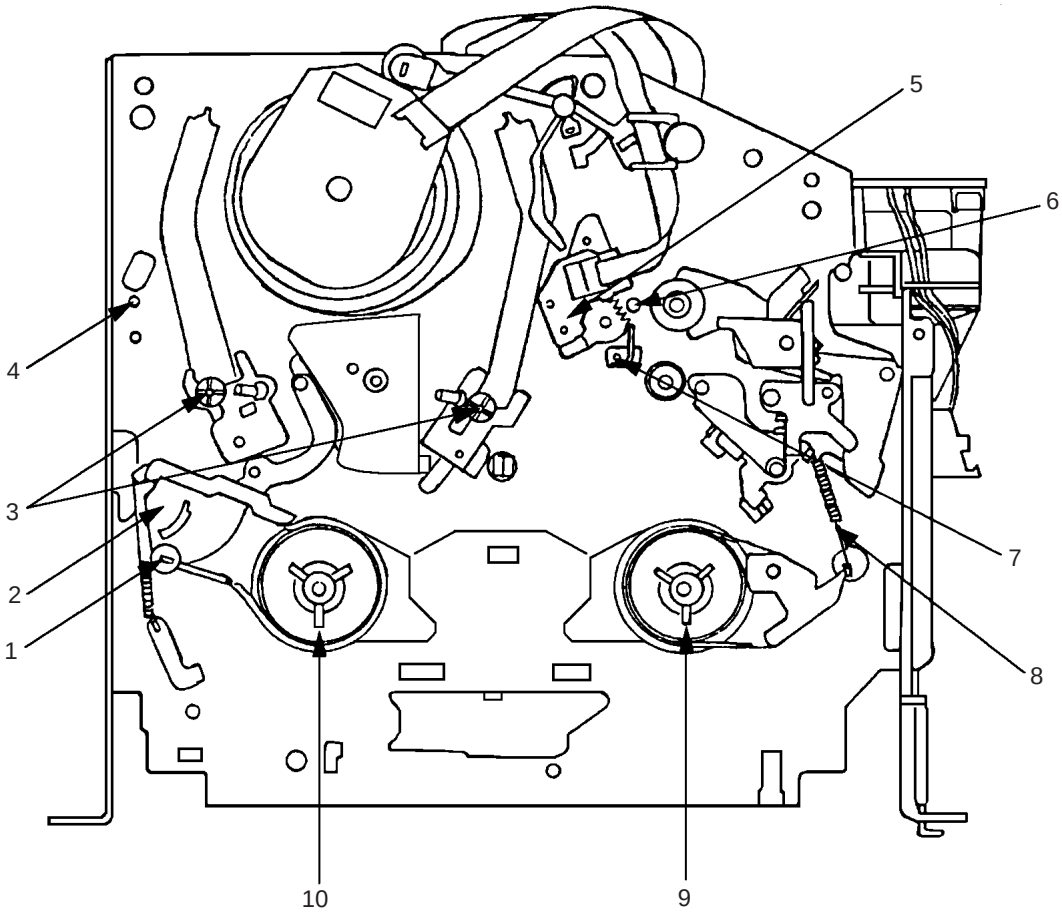
Fig. 2-2-C

2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

1. Confirm and adjust the height of the Reel Disk. **(Refer to item 1-1)**
2. Confirm and adjust the position of the Tension Post. **(Refer to item 1-2)**
3. Adjust the Guide Roller. **(Refer to item 2-1)**
4. Confirm and adjust the Audio/Control Head. **(Refer to item 2-2)**
5. Connect CH-1 of the oscilloscope to **TP4002**, CH-2 to **TP4001** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape.
7. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver **(JG153)** to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-1-A**.

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



1. Tension Adjust
2. Tension Arm
3. Guide Roller
4. P1 Post
5. Audio/Control Head
6. X value adjustment driver hole
7. P4 Post
8. T Brake Spring
9. T Reel
10. S Reel

ELECTRICAL ADJUSTMENTS

1. ADJUSTMENT PROCEDURE

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

When replacing IC's or transistors, use only specified silicon grease.
(To prevent the damage to IC's and transistors.)

On-Screen Display Adjustment

1. Unplug the AC plug for more than 30 minutes to set the clock to the non-setting state. (To release the Back-Up immediately, take the short circuit between **C1003** and **GND** at the Power Off.) Then, set the volume level to minimum.
2. Press the VOL. DOWN button on the set and the channel button **(9)** on the remote control for more than 2 seconds to display adjustment mode on the screen as shown in **Fig. 1-1**.

NOTE

Use the channel buttons **(1-8)** on the remote control to select the options shown in **Fig. 1-1.**
Press the channel button **(0)** or MENU button on the remote control to end the adjustments.

1. H/V
2. AKB
3. COLOR TEMP
4. PICTURE
5. OTHERS
6. TEST PATTERN
7.
8. 0. END

Fig. 1-1

2. BASIC ADJUSTMENTS (VCR SECTION)

2-1: PG SHIFTER

1. Connect CH-1 on the oscilloscope to **TP4001** and CH-2 to **pin 7 of CP603**.
2. Playback the alignment tape.
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears. If the indicator REC disappears, adjustment is completed.

(If the above adjustments doesn't work well:)

5. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears.
6. When the REC indicator is blinking, press both VOL. DOWN button on the set and the channel button **(4)** on the remote control simultaneously and adjust the Tracking +/- button until the arising to the down of Head Switching Pulse becomes 6.5 ± 0.5H.
   (Refer to Fig. 2-1-A, B)
7. Press the Tracking Auto button.

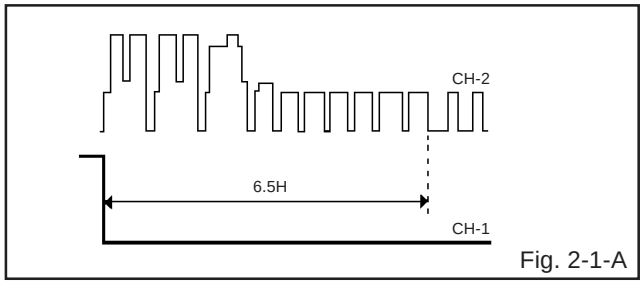


Fig. 2-1-A

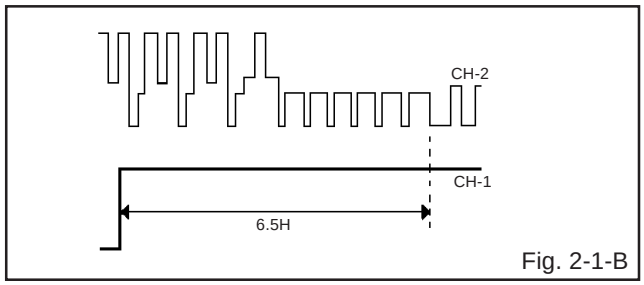


Fig. 2-1-B

2-2: VCO

1. Place the set with Aging Test for more than 10 minutes.
2. Connect the oscillator (39.5MHz) to **pin 11 of TU601** through 100 Ω resistor.
3. Connect the digital voltmeter between the **pin 47 of IC601**.
4. Adjust the **L608** until the digital voltmeter is 3.8 ± 0.05V.

2-3: RF AGC

1. Receive the UHF (80dB).
2. Connect the digital voltmeter between the **pin 5 of CP603** and the **pin 1 (GND) of CP603**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(5)** on the remote control to select "OTHERS". The **Fig. 2-2** appears on the display.
4. Press the channel button **(1)** on the remote control to select "RF AGC DELAY".
5. Press the PLAY or STOP button on the remote control until the digital voltmeter is 2.5 ± 0.05V.

1. RF AGC DELAY
2. VIDEO LEVEL
3. FM LEVEL
4. OSD H
5. CUT OFF
6. (VOL TEST)
7.
8. 0. RETURN

Fig. 2-2

ELECTRICAL ADJUSTMENTS

(TV SECTION)

2-4: CONSTANT VOLTAGE

1. Connect the digital voltmeter to **TP401**.
2. Set condition is AV MODE without signal.
3. Adjust the **VR502** until the DC voltage is 135 ± 0.5V.

2-5: CUT OFF

1. Place the set with Aging Test for more than 15 minutes.
2. Set condition is AV MODE without signal.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(5)** on the remote control to select "OTHERS". The **Fig. 2-2** appears on the display.
5. Press the channel button **(5)** on the remote control to select "CUT OFF".
6. Adjust the **Screen Volume** until a dim raster is obtained.

2-6: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the white 100% signal from the Pattern Generator.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(2)** on the remote control to select "AKB". The **Fig. 2-3** appears on the display.
5. Press the channel button **(2)** on the remote control to select the "R.BIAS".
6. Using the PLAY or STOP button on the remote control, adjust the R.BIAS.
7. Press the CH. UP/DOWN button on the remote control to select the "G.BIAS", "B.BIAS", "R.DRIVE", "G.DRIVE" or "B.DRIVE".
8. Using the PLAY or STOP button on the remote control, adjust the G.BIAS, B.BIAS, R.DRIVE, G.DRIVE or B.DRIVE.
9. Perform the above adjustments 7 and 8 until the white color is looked like a white.

1.
2. R.BIAS
3. G.BIAS
4. B.BIAS
5. R.DRIVE
6. G.DRIVE
7. B.DRIVE
8. 0. RETURN

Fig. 2-3

2-7: FOCUS

1. Receive a broadcast.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the **Focus Volume** until picture is distinct.

2-8: HORIZONTAL PHASE

1. Receive the center cross signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(1)** on the remote control to select "H/V". The **Fig. 2-4** appears on the display.
4. Press the channel button **(1)** on the remote control to select "H. PHASE".
5. Press the PLAY or STOP button on the remote control until the vertical line becomes fit to the notch of the shadow mask.

1. H. PHASE
2. H. BLK
3. V. SIZE 50/60
4. V. POSI 50/60
5. V. LIN 50/60
6. V. SC 50/60
7. V. COMP
8. (H FREQ) 0. RETURN

Fig. 2-4

2-9: VERTICAL SIZE

NOTE: Adjust after performing adjustments in section 2-8.

1. Receive the cross hatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(1)** on the remote control to select "H/V". The **Fig. 2-4** appears on the display.
4. Press the channel button **(3)** on the remote control to select "V. SIZE 50/60".
5. Press the PLAY or STOP button on the remote control until the rectangle on the center of the screen becomes square.
6. Receive a broadcast and check if the picture is normal.
7. Receive the cross hatch signal of NTSC. (Audio Video Input)
8. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.

ELECTRICAL ADJUSTMENTS

2-10: VERTICAL LINEARITY

NOTE: Adjust after performing adjustments in section 2-9.

1. Receive the cross hatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(1)** on the remote control to select "H/V". The **Fig. 2-4** appears on the display.
4. Press the channel button **(5)** on the remote control to select "V. LIN 50/60".
5. Press the PLAY or STOP button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.
6. Receive the cross hatch signal of NTSC. (Audio Video Input)
7. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.

2-11: VERTICAL POSITION

NOTE: Adjust after performing adjustments in section 2-10.

1. Receive the center cross signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(1)** on the remote control to select "H/V". The **Fig. 2-4** appears on the display.
4. Press the channel button **(4)** on the remote control to select "V. POSI 50/60".
5. Press the PLAY or STOP button on the remote control until the horizontal line becomes fit to the notch of the shadow mask.
6. Receive the center cross signal of NTSC. (Audio Video Input)
7. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.

2-12: OSD HORIZONTAL

1. Using the remote control, set the brightness and contrast to normal position.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(5)** on the remote control to select "OTHERS". The **Fig. 2-2** appears on the display.
3. Press the channel button **(4)** on the remote control to select "OSD H".
4. Press the PLAY or STOP button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-5)**

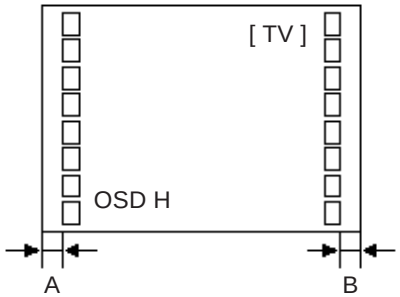


Fig. 2-5

2-13: SUB BRIGHTNESS

1. Receive the monoscope pattern (80dB). (RF Input)
2. Using the remote control, set the brightness to minimum position and contrast to maximum position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(4)** on the remote control to select "PICTURE". The **Fig. 2-6** appears on the display.
4. Press the channel button **(1)** on the remote control to select "BRIGHT".
5. Press the PLAY or STOP button on the remote control until the white 25% is starting to be visible.
6. Receive the monoscope pattern. (Audio Video Input)
7. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.

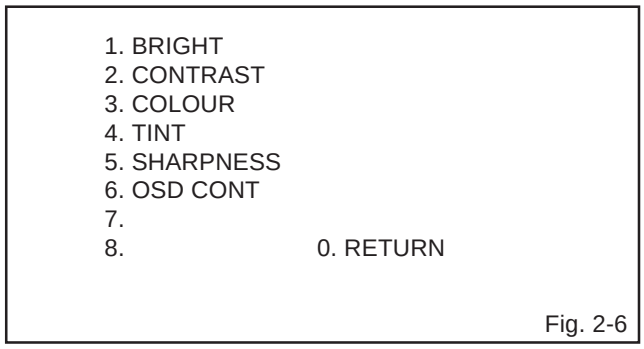


Fig. 2-6

2-14: SUB COLOR

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast and color to normal position.
3. Connect the synchro scope to **TP801**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(4)** on the remote control to select "PICTURE". The **Fig. 2-6** appears on the display.
5. Press the channel button **(3)** on the remote control to select "COLOR".
6. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
7. Press the PLAY or STOP button on the remote control until the red color level is adjusted to 95% of the white level. **(Refer to Fig. 2-7)**
8. Receive the color bar pattern. (Audio Video Input)
9. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~7.

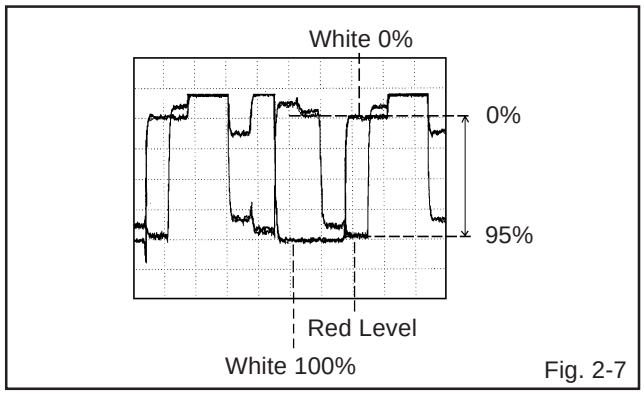
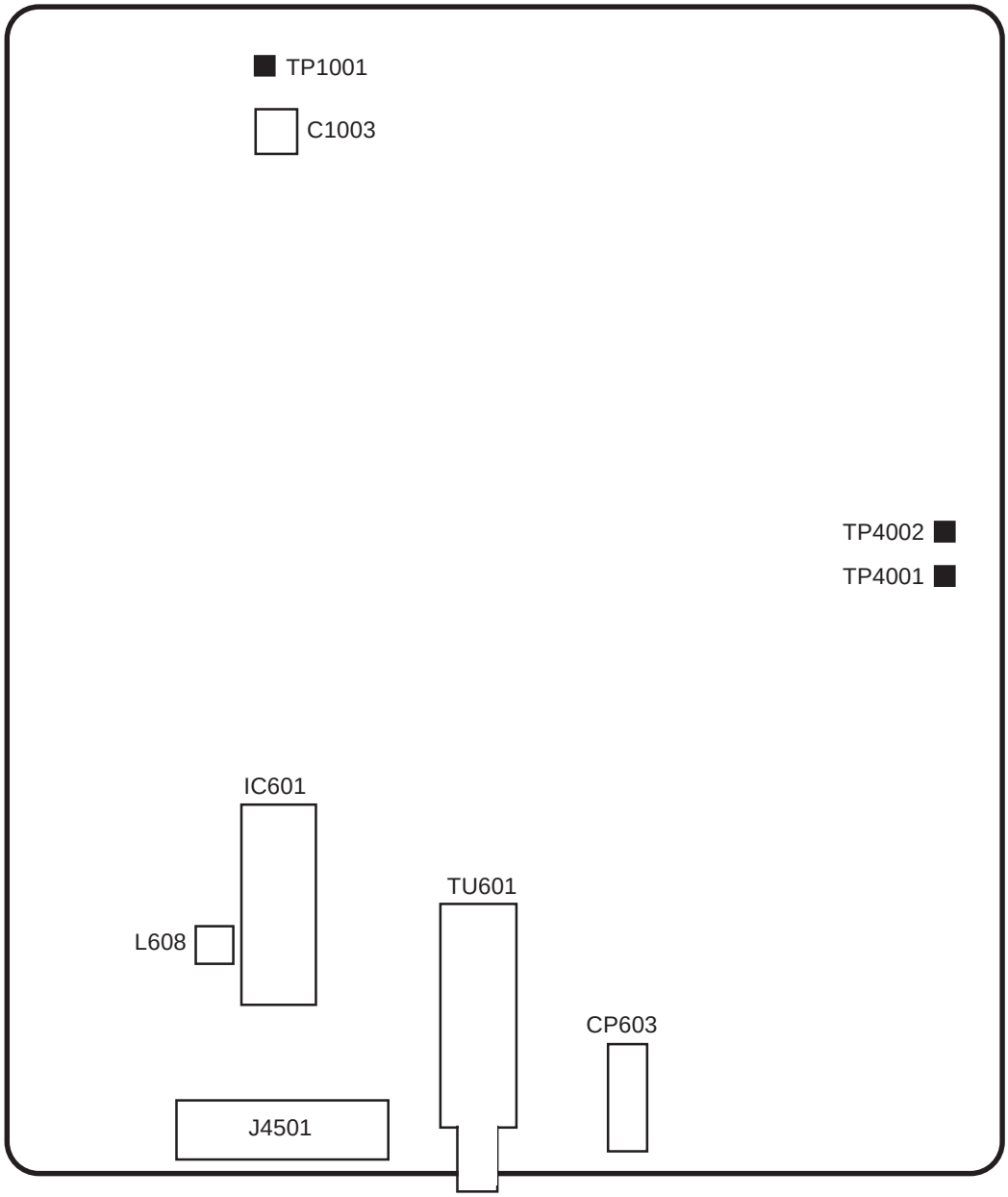


Fig. 2-7

ELECTRICAL ADJUSTMENTS

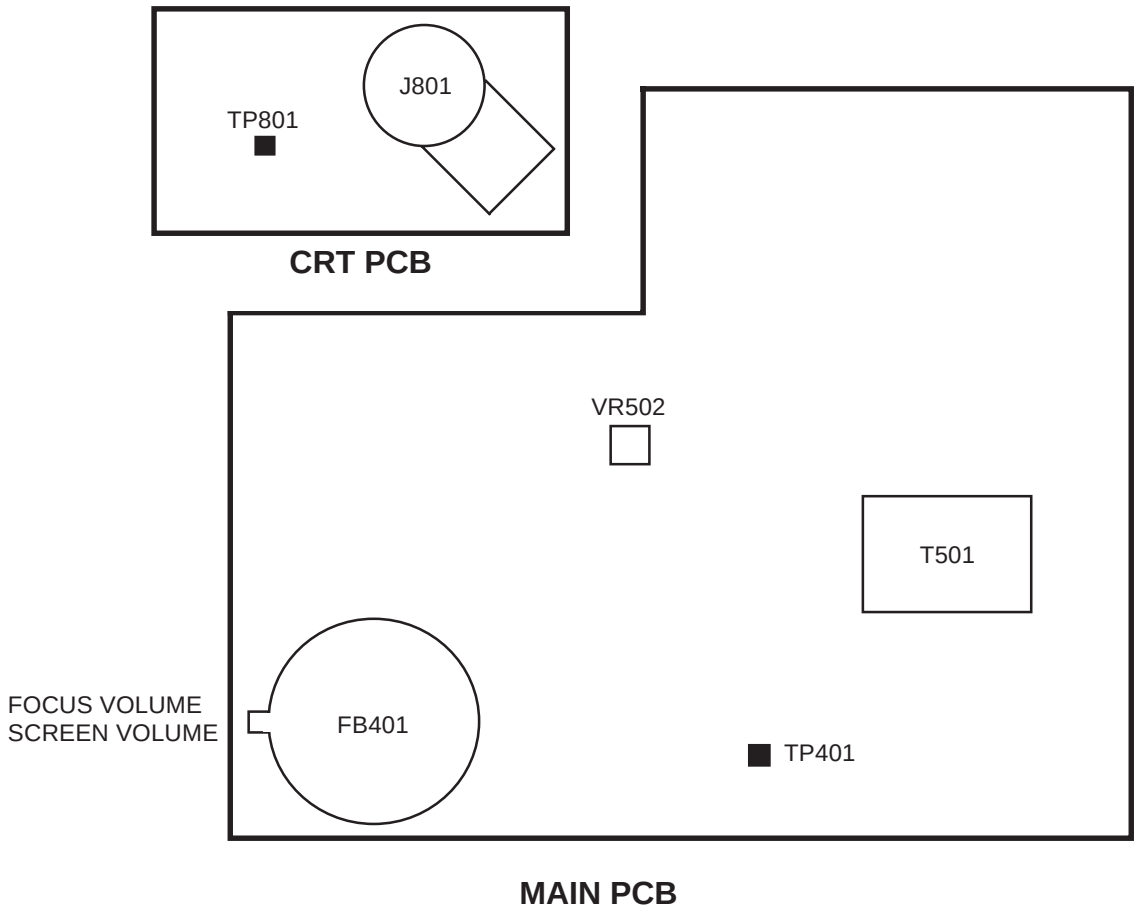
3. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (VCR SECTION)



SYSCON PCB

ELECTRICAL ADJUSTMENTS

(TV SECTION)



ELECTRICAL ADJUSTMENTS

4. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

4-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 4-1)**
   If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

4-2: PURITY

NOTE

Adjust after performing adjustments in section 4-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
   Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

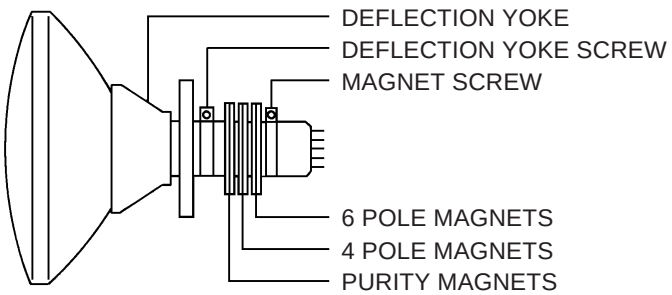


Fig. 4-1

4-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 4-2.

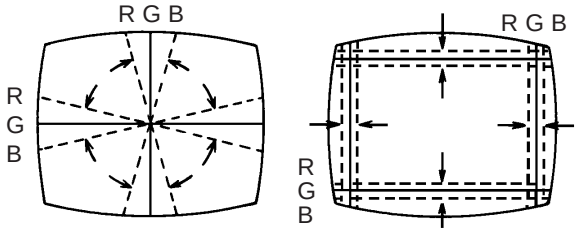
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

4-4: DYNAMIC CONVERGENCE

NOTE

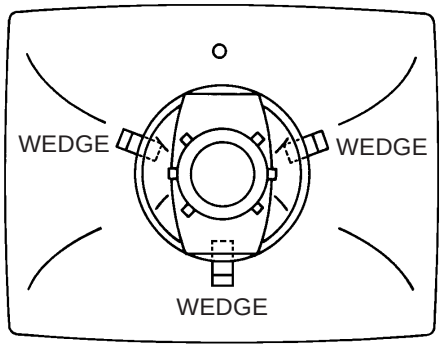
Adjust after performing adjustments in section 4-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left.
   (Refer to Fig. 4-2-a)
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke.
   (Refer to Fig. 4-2-b)



UPWARD/DOWNWARD SLANT RIGHT/LEFT SLANT

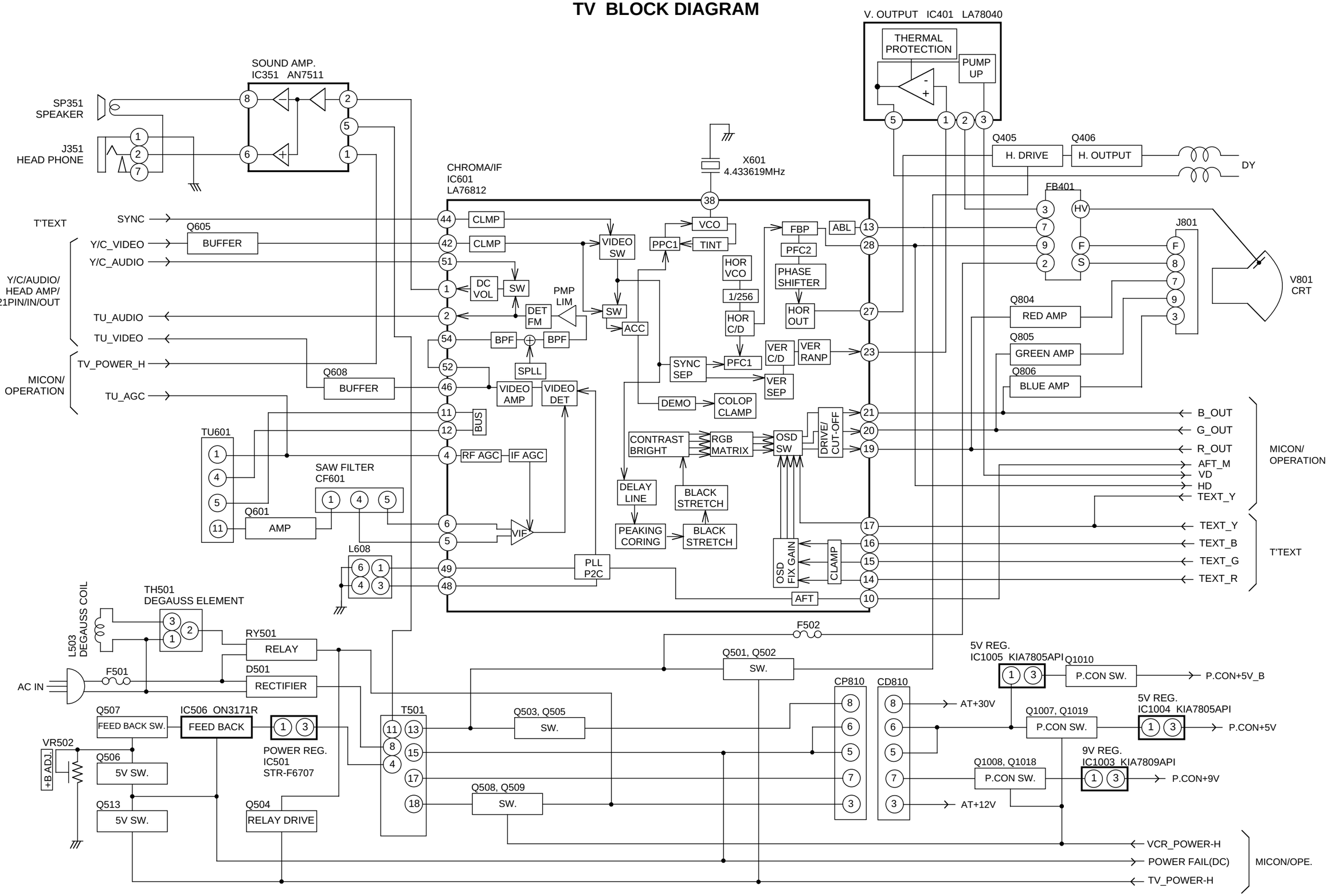
Fig. 4-2-a



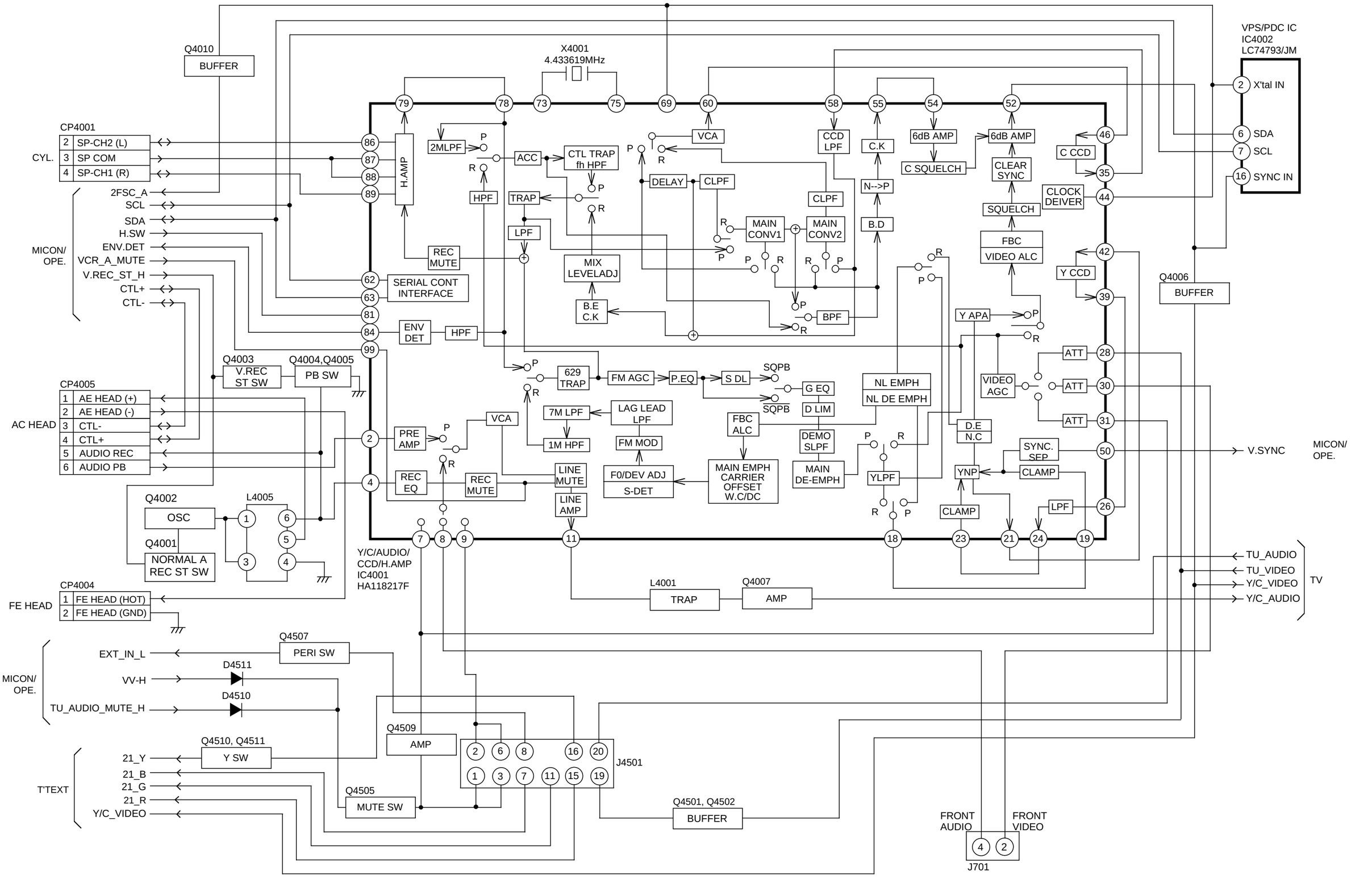
WEDGE POSITION

Fig. 4-2-b

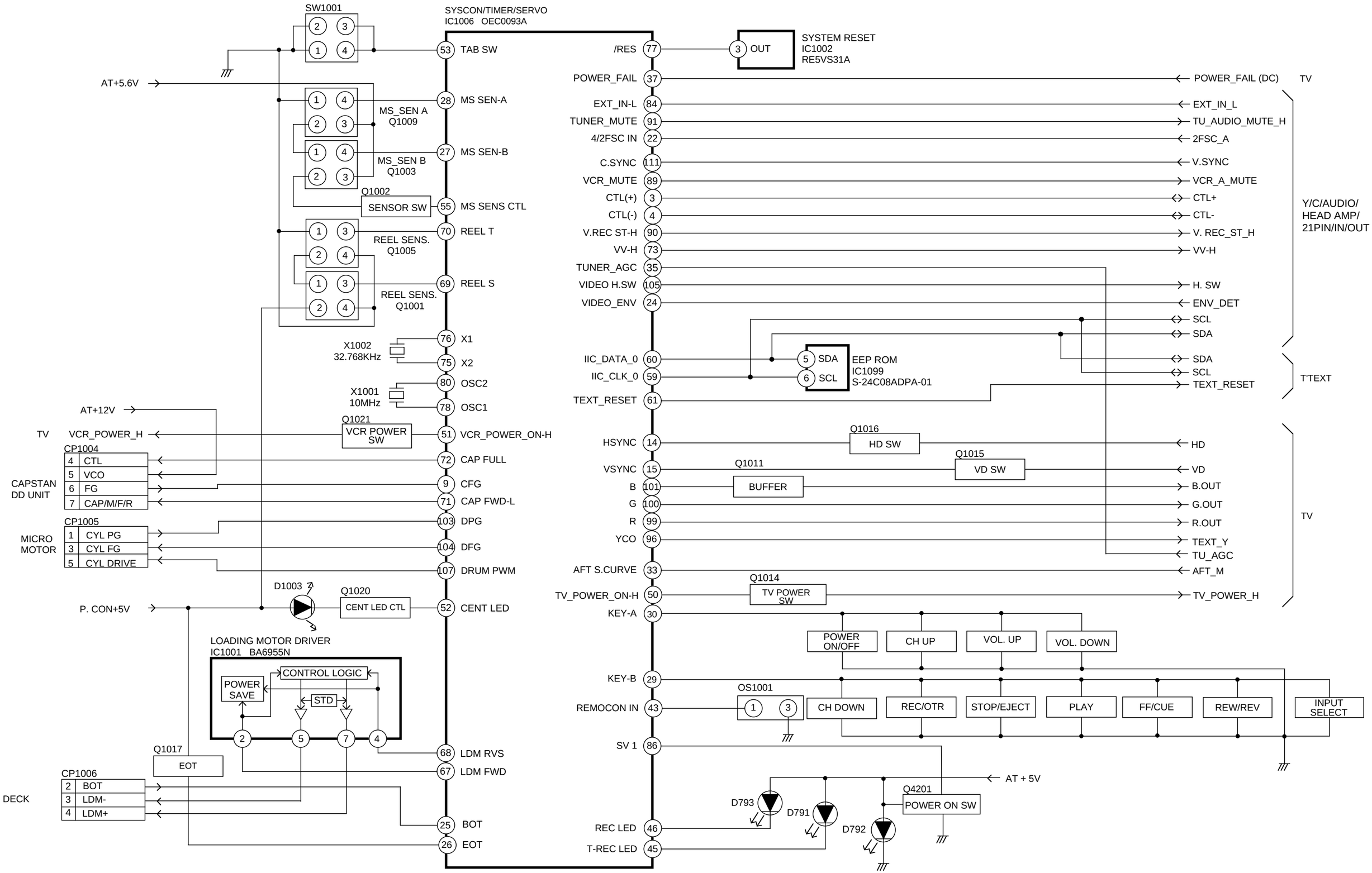
TV BLOCK DIAGRAM



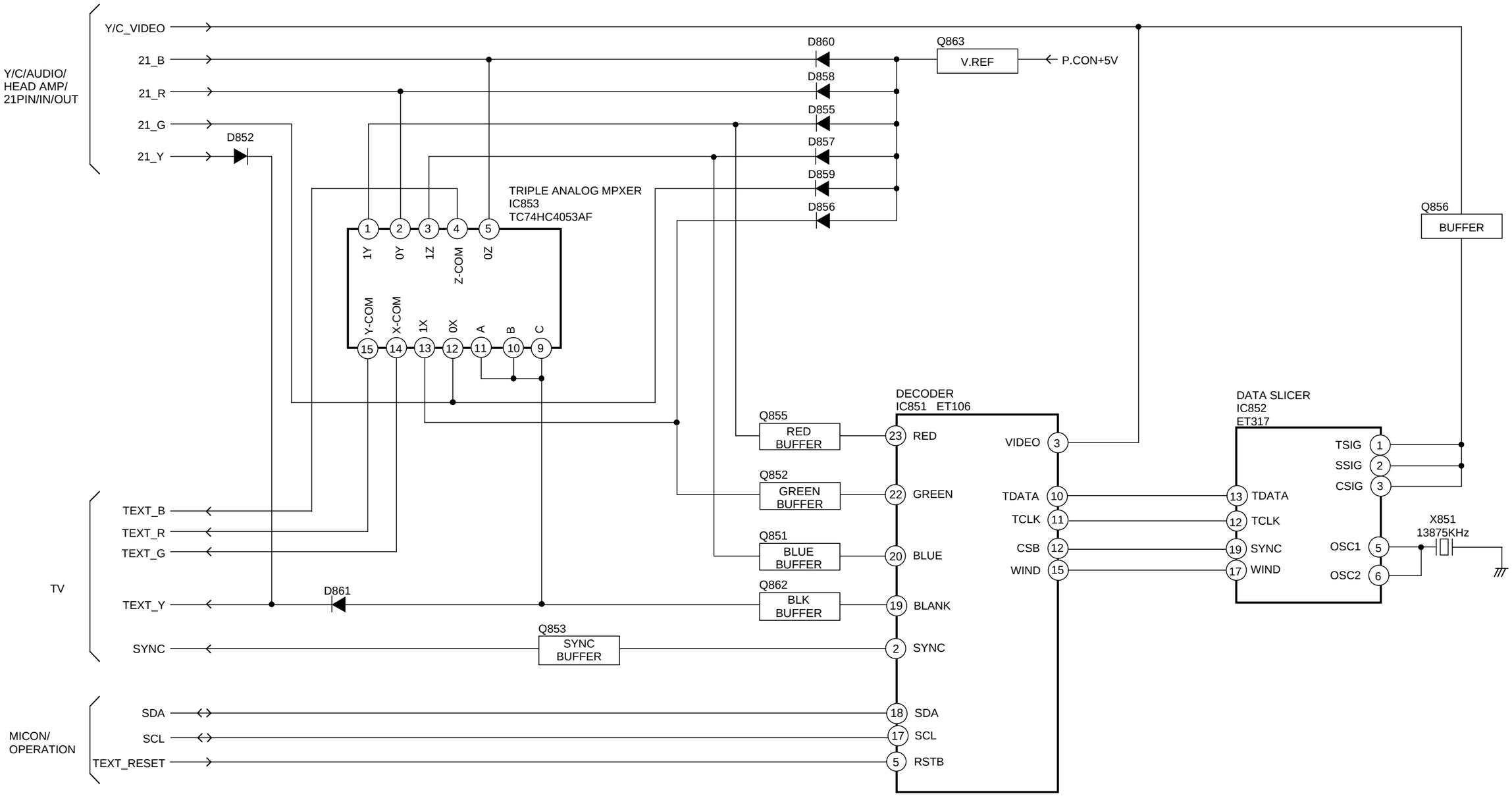
Y/C/AUDIO/HEAD AMP/21PIN/IN/OUT BLOCK DIAGRAM



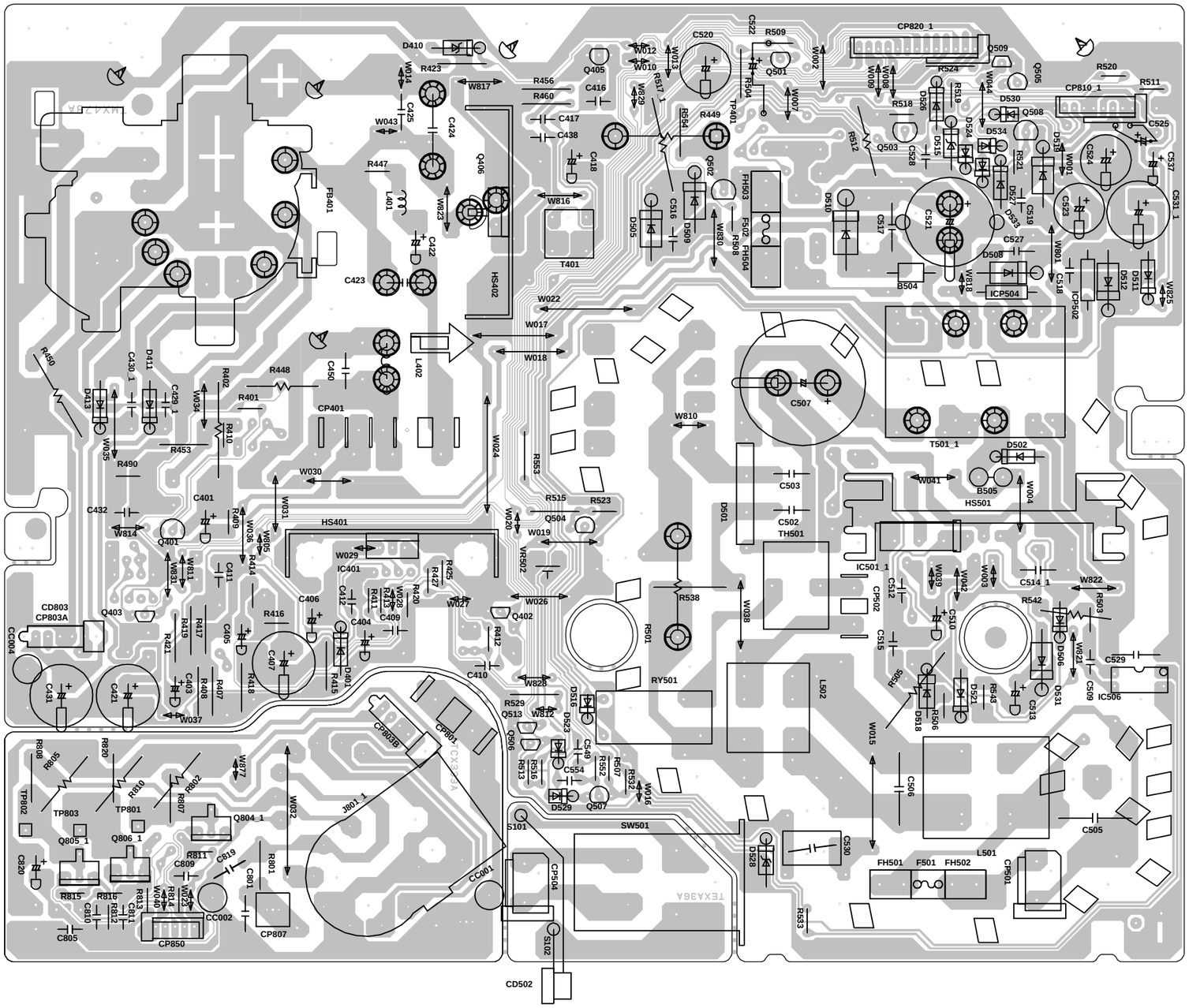
MICON/OPERATION BLOCK DIAGRAM



T'TEXT BLOCK DIAGRAM

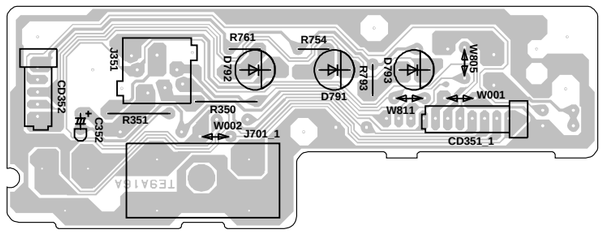


PRINTED CIRCUIT BOARDS
MAIN/CRT/POWER SW
SOLDER SIDE

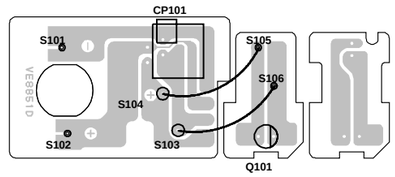


PRINTED CIRCUIT BOARDS

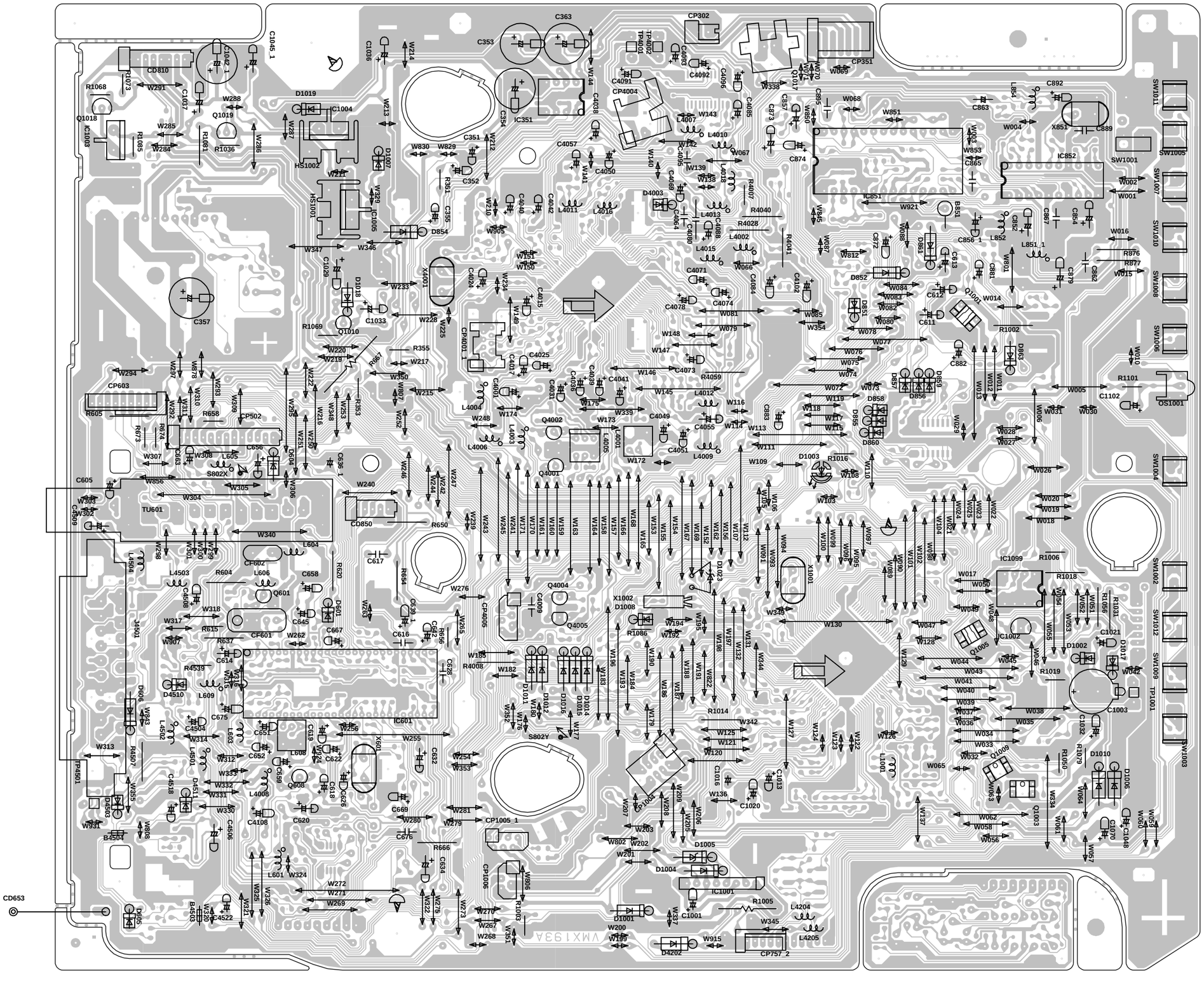
OPERATION
SOLDER SIDE



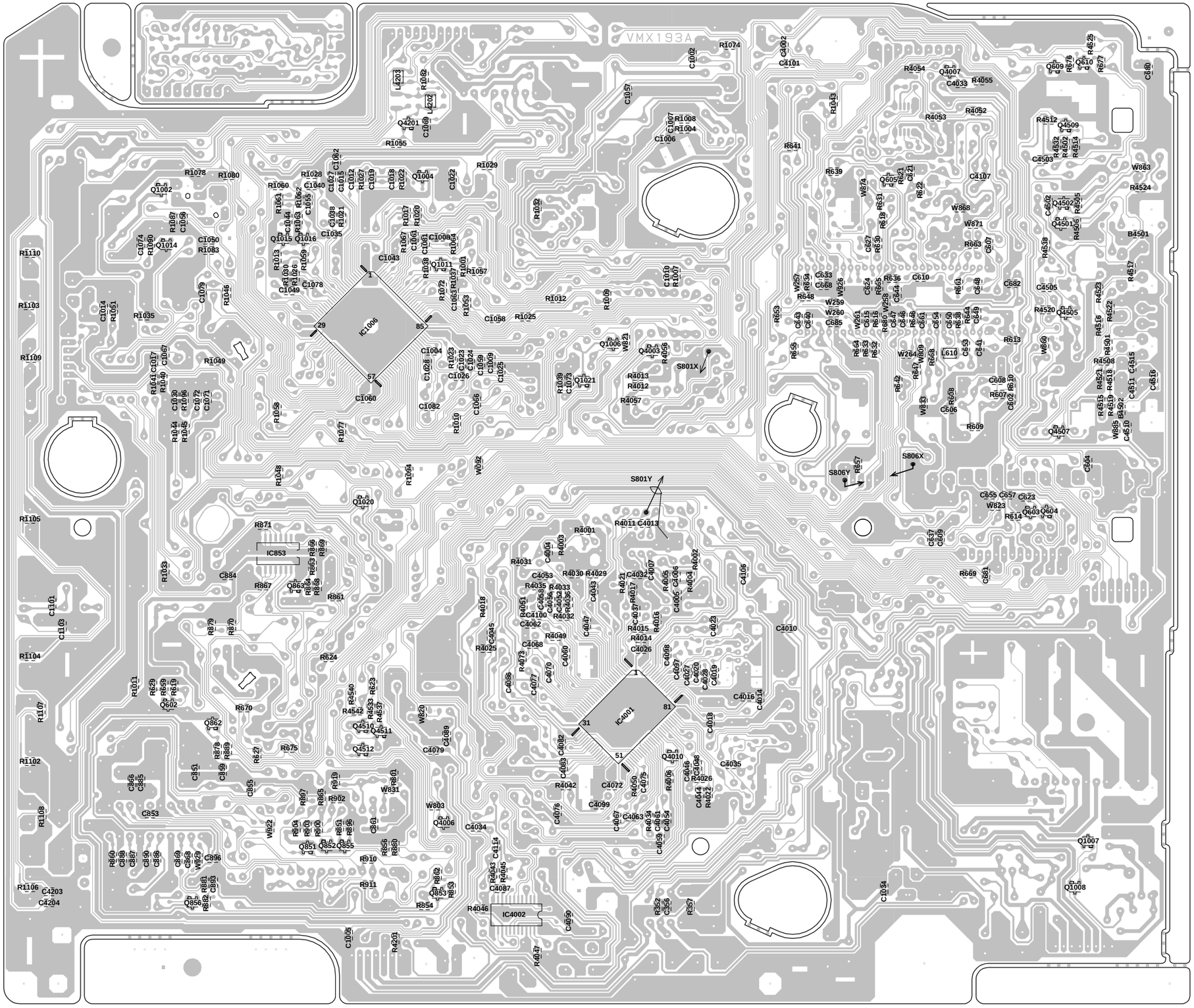
DECK
SOLDER SIDE



PRINTED CIRCUIT BOARDS
SYSCON (INSERTED PARTS)
SOLDER SIDE



PRINTED CIRCUIT BOARDS
SYSCON (CHIP MOUNTED PARTS)
SOLDER SIDE



Y/C/AUDIO/HEAD AMP SCHEMATIC DIAGRAM (SYSCON PCB)

FROM/TO POWER

FROM/TO CYL MOTOR

CP4001_1
TOC-C04X-B1

4	SP-CH1 (R)
3	SP COM
2	SP-CH2 (L)
1	NC

FROM/TO A/C HEAD

CP4005
IMSA-9604S-06Z14

1	AE HEAD(+)
2	AE HEAD(-)
3	CTL-
4	CTL+
5	AUDIO REC
6	AUDIO PB

TO F/E HEAD

CP4004 TMC-T02X-E1

2	FE HEAD(GND)
1	FE HEAD(HOT)

CAUTION: DIGITAL TRANSISTOR

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK。

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

FROM/TO CHROMA/IF
- TU_VIDEO
- TU_AUDIO
- Y/C_VIDEO
- Y/C_AUDIO

FROM/TO 21PIN I/O
- FRONT_VIDEO
- REAR_VIDEO
- FRONT_AUDIO
- REAR_AUDIO

FROM/TO T'TEXT
- Y/C_VIDEO

FROM/TO MICON
- VCR_A_MUTE
- H.SW
- V.SYNC
- SCL
- SDA
- 2FSC_A
- MESECAM_M
- D.V_SYNC
- V.REC_ST_H
- ENV_DET
- CTL+
- CTL-
- GND

PCB010
VMX193

MICON SCHEMATIC DIAGRAM (SYSCON PCB)

FROM/TO POWER
AT+5.6V
GND
VCR_POWER_H
P.CON+5V
AT+12V
MOTOR_GND (LDM)

D1006 SB10-03A3
D1010 SB10-03A3

LOADING MOTOR DRIVER IC
IC1001 BA6955N
CONTROL LOGIC
TSD
POWER SAVE
LDM_F
LDM_R
LM-
LM+
D1001 1N4005E
EOT
BOT

FROM/TO DECK
CP1006 IMSA-9604S-04Z14
1 VCC
2 BOT
3 LDM-
4 LDM+

FROM/TO MICRO MOTOR
CP1005_1 IMSA-9604S-05Z14
5 CYL DRIVE
4 CYL GND
3 CYL FG
2 CYL +B
1 CYL PG

FROM/TO CAPSTAN DD UNIT
CP1004 TMC-J08P-B1
1 GND
2 MOTOR GND
3 I LIMIT
4 CTL
5 VCO
6 FG
7 CAP.M F/R
8 VCC(5V)

SYSCON/TIMER/SERVO IC
IC1006
OEC0093A

FROM/TO Y/C/A/H.AMP
D.V_SYNC
V.REC_ST_H
MESECAM_M
2FSC_A
SCL
SDA
H.SW
ENV_DET
VCR_A_MUTE
CTL+
CTL-
V.SYNC
GND

FROM/TO 21PIN I/O
ON_TIM_LED
KEY_B
KEY_A
T-REC_LED
REC_LED
VCR_POWER_H
STANDBY_H
REMOCON_IN
VV-H
EXT_IN_L
TU_AUDIO_MUTE_H
GND
TUNERON/OFF-A
AT+5.6V_A

FROM/TO CHROMA/IF
SD_L
VV-H
VCR_POWER_H
TV_POWER_H
HD
VD
R-OUT
G-OUT
B-OUT
TEXT_Y
SDA
SCL
IIC_OFF
AFT_M
GND
TUNER_AGC
POWER_FAIL[DC]
DEGAUSS_H

FROM/TO T'TEXT
AT+5.6V_A
TUNERON/OFF-A
SCL
SDA
TEXT_RESET

FROM/TO SOUND AMP
M.POWEROFFMUTE_H
TV_POWER_H
TV_A_MUTE

EEP ROM IC IC1099 S-24C08ADPA-01
MAIN POWER OFF MUTE SW Q1006 DTA124EKA
VCR POWER SW Q1021 2SC2412K
TV POWER SW Q1014 2SC2412K
VD SW Q1015 2SC2412K
HD SW Q1016 2SC2412K
BUFFER Q1011 2SC2412K
SERVICE TP1001 JWF-50K-1
SENSOR SW Q1002 2SC2412K
MS_SEN B Q1003 RPI-352Q01R
MS_SEN A Q1009 RPI-352Q01R
REEL SENSOR Q1001 RPI-301
REEL SENSOR Q1005 RPI-301
FF/REW SW Q1004 DTC124EKA
CENT LED CTL Q1020 DTC143EKA
EOT Q1017 PNA2604M010R
SW1001 SPVF130100
SYSTEM RESET IC IC1002 RE5VS31A

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP
IS NON POLAR ONE.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK。

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

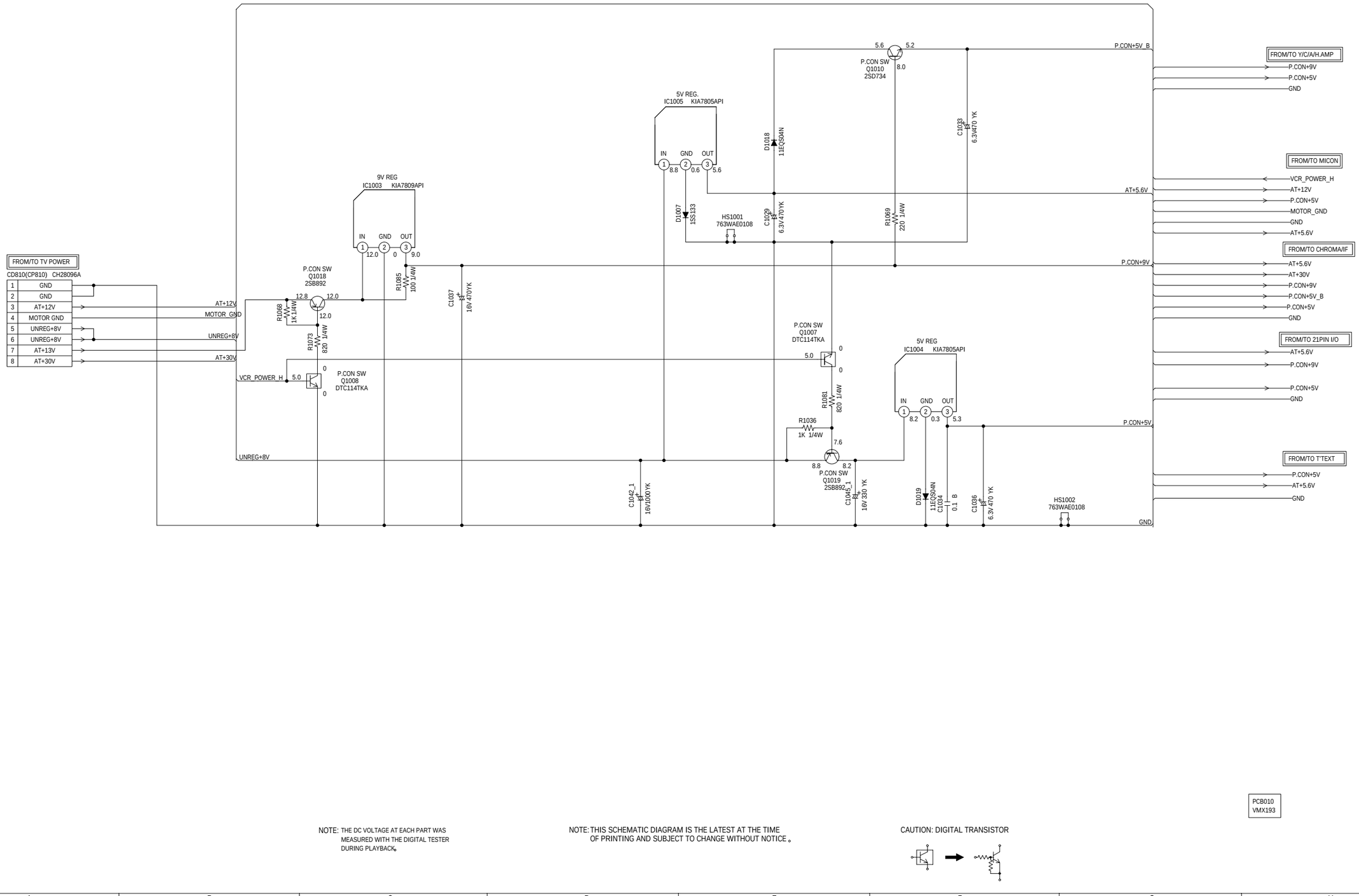
CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

PCB010
VMX193

POWER SCHEMATIC DIAGRAM

(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: DIGITAL TRANSISTOR

21PIN/IN/OUT SCHEMATIC DIAGRAM

(SYSCON PCB)

FROM/TO MICON
ON_TIM_LED
KEY_B
REC_LED
T-REC_LED
KEY_A
REMOCON_IN
STANDBY_H
AT+5.6V_A
GND
TUNERON/OFF-A
VV-H
EXT_IN_L
TU_AUDIO_MUTE_H
W822
1/4WR1101 100
C1101 0.1 B
C1102 6.3V100 KA
OS1001 GP1U281Q
Vout
B+
GND
C1103 100P CH
V.OUT TP4501 31
R4524 68
21 R
21 G
21 B
C4510 0.01 B
W931
W863
B4501 BLM21A601SPT
R4523 75
R4522 75
R4521 75
L4504 10uH
32
W885
C4509 16V10 KA
W860
W907
P.CON+5V
R4533 10K
R4537 10K
21 Y
Y SW Q4510 2SC2412K
Y SW Q4511 2SC2412K
R4540 1K
R4516 75
R4517 75
EXT H
TUNERON/OFF-A
R4542 10K
TUNER SW Q4512 2SC2412K
J4501 035_0_9985_05
C4515 470PCH
C4516 470PCH
C4511 470P CH
R4501 56K
R4518 5.6K
R4519 5.6K
L4503 10uH
C4508 50V1 KA
R4520 150
R4508 6.8K
B4502 BLM21A601SPT
R4515 120K
L4204 100uH
L4203 100uH
W915
L4202 100uH
L4205 100uH
CP757_2(CD352) 8283_0512_00_000
FROM/TO OPERATION
POWER ON L
T-REC LED
REC LED
ON TIMER LED
AT+5V
CP353(CD351) 173979-7
GND
SP OUT L
SOUND OUT L
SOUND GND
FRONT A IN L
GND
FRONT VIDEO IN
FROM/TO SOUND AMP
SOUND_GND_A
SOUND+
SP_OUT
FROM/TO POWER
D4202 11ES1N
AT+5.6V
P.CON+5V
R4201 75
GND
P.CON+9V
POWER ON SW Q4201 DTC114EK
R1102 820
R1103 1K
R1104 1.5K
R1105 2.7K
R1109 6.8K
R1110 15K
R1106 820
R1107 1K
R1108 1.5K
CH DOWN SW1010 SKHVBED010
REC/OTR SW1009 SKHVBED010
STOP/EJECT SW1006 SKHVBED010
PLAY SW1004 SKHVBED010
FF/CUE SW1002 SKHVBED010
REW/REV SW1002 SKHVBED010
INPUT SELECT SW1003 SKHVBED010
POWER ON/OFF SW1011 SKHVBED010
CH UP SW1008 SKHVBED010
VOL UP SW1007 SKHVBED010
VOL DOWN SW1005 SKHVBED010
FROM/TO CHROMA/IF
TU_AUDIO
TU_VIDEO
EXT_H
MUTE SW Q4505 2SC2412K
R4538 1.5K
D4510 1SS133
D4511 1SS133
FROM/TO Y/C/A/H.AMP
FRONT_VIDEO
FRONT_AUDIO
REAR_AUDIO
TU_VIDEO
REAR_VIDEO
C4522 16V10 KA
W808
C4518 50V0.1 KA
TU_AUDIO
P.CON+9V
R4539 4.7K 1/4W
R4507 150 1/2W
L4502 100uH
W843
R4506 22K
BUFFER Q4501 2SC2412K
BUFFER Q4502 2SA1037AK
R4525 100
C4502 1 F
R4505 12K
D4503 1SS133
C4505 0.018 B
PERI SW Q4507 2SC2412K
C4506 16V100 KA
C4503 1 F
C4504 16V10 KA
L4501 100uH
R4512 680
R4502 560K
AMP Q4509 2SC2412K
R4532 100
R4514 330K
FROM/TO T'TEXT
21_Y
21_R
21_G
21_B
GND

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

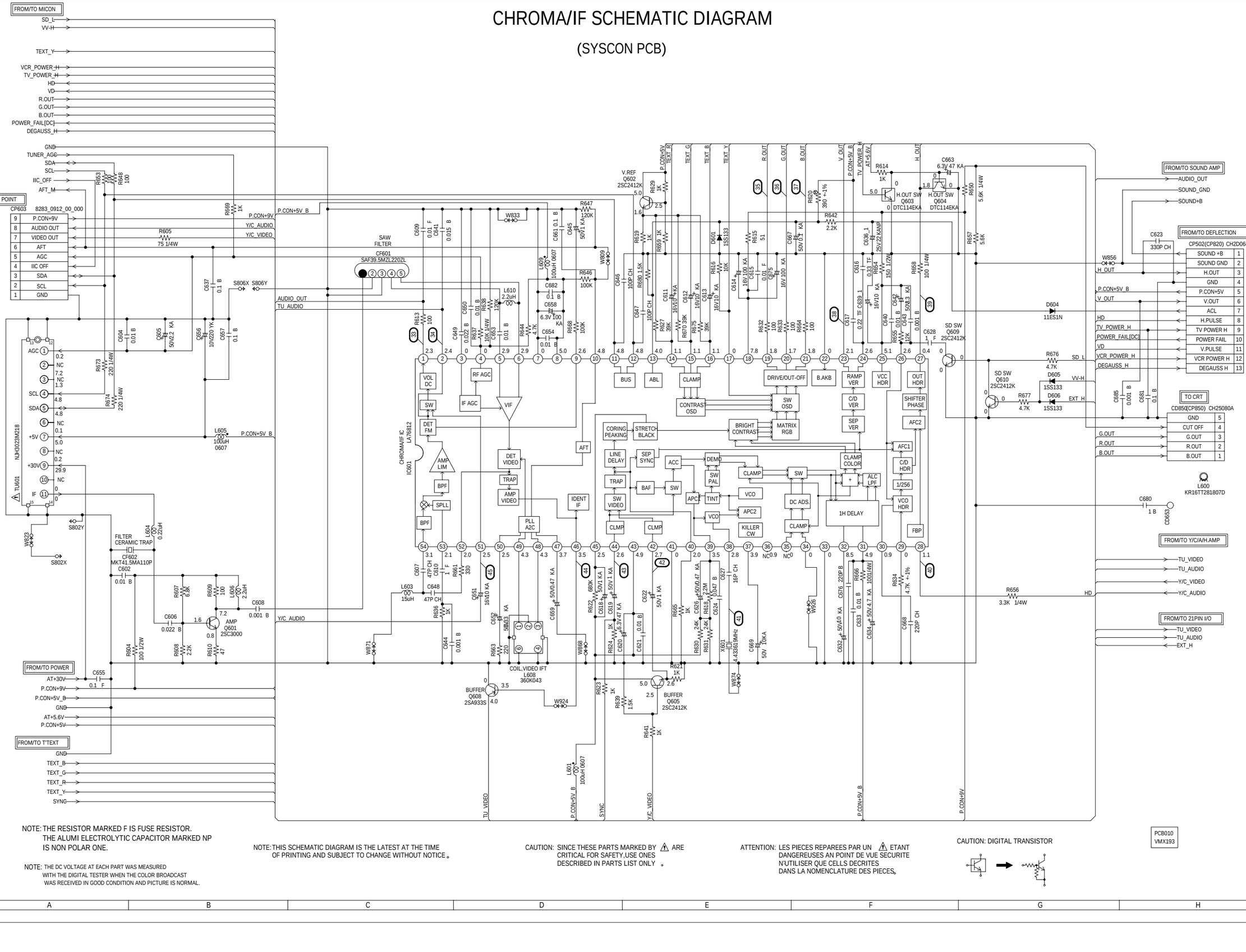
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: DIGITAL TRANSISTOR

PCB010
VMX193

CHROMA/IF SCHEMATIC DIAGRAM

(SYSCON PCB)



NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

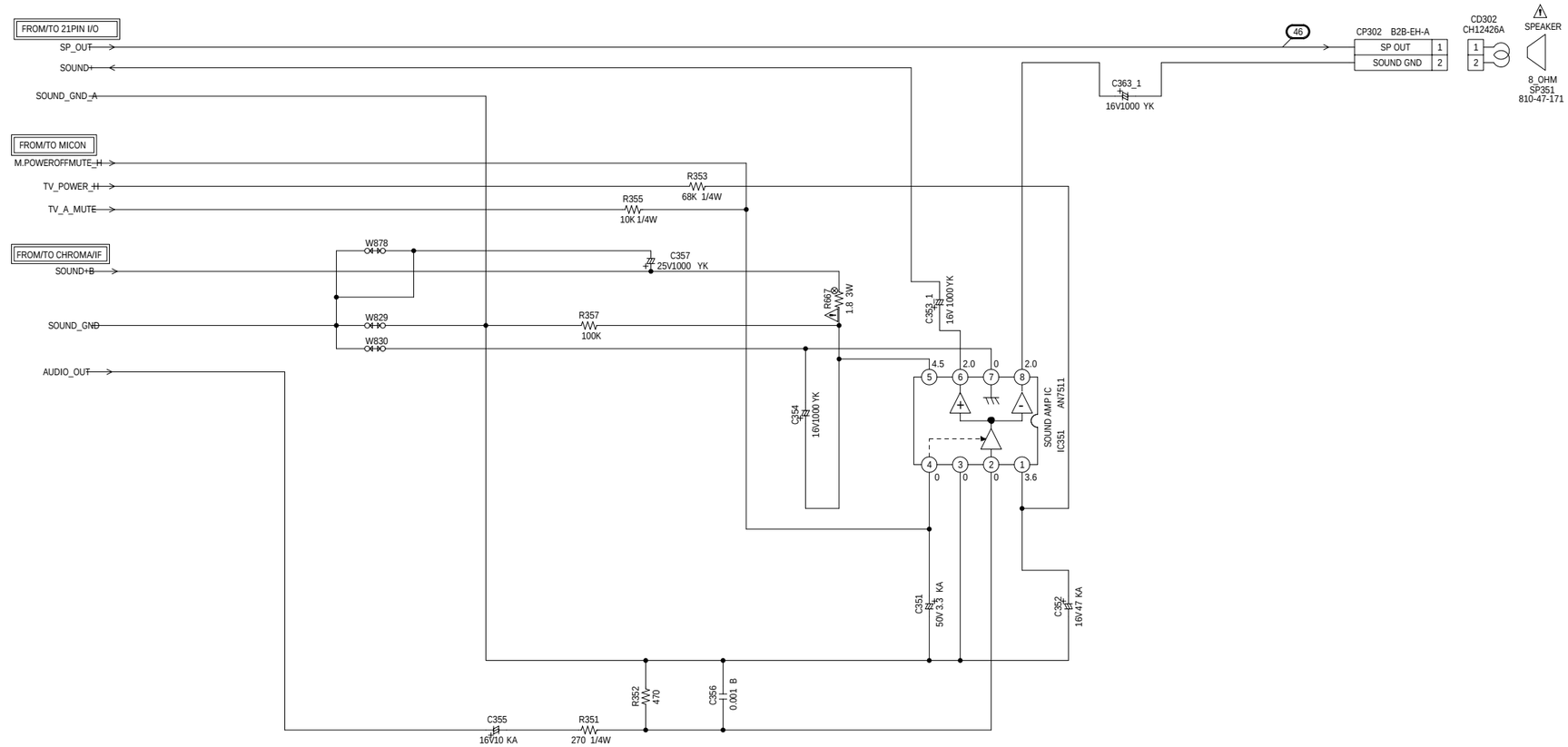
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION: DIGITAL TRANSISTOR

PCB010
VMX193

SOUND AMP SCHEMATIC DIAGRAM

(SYSCON PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

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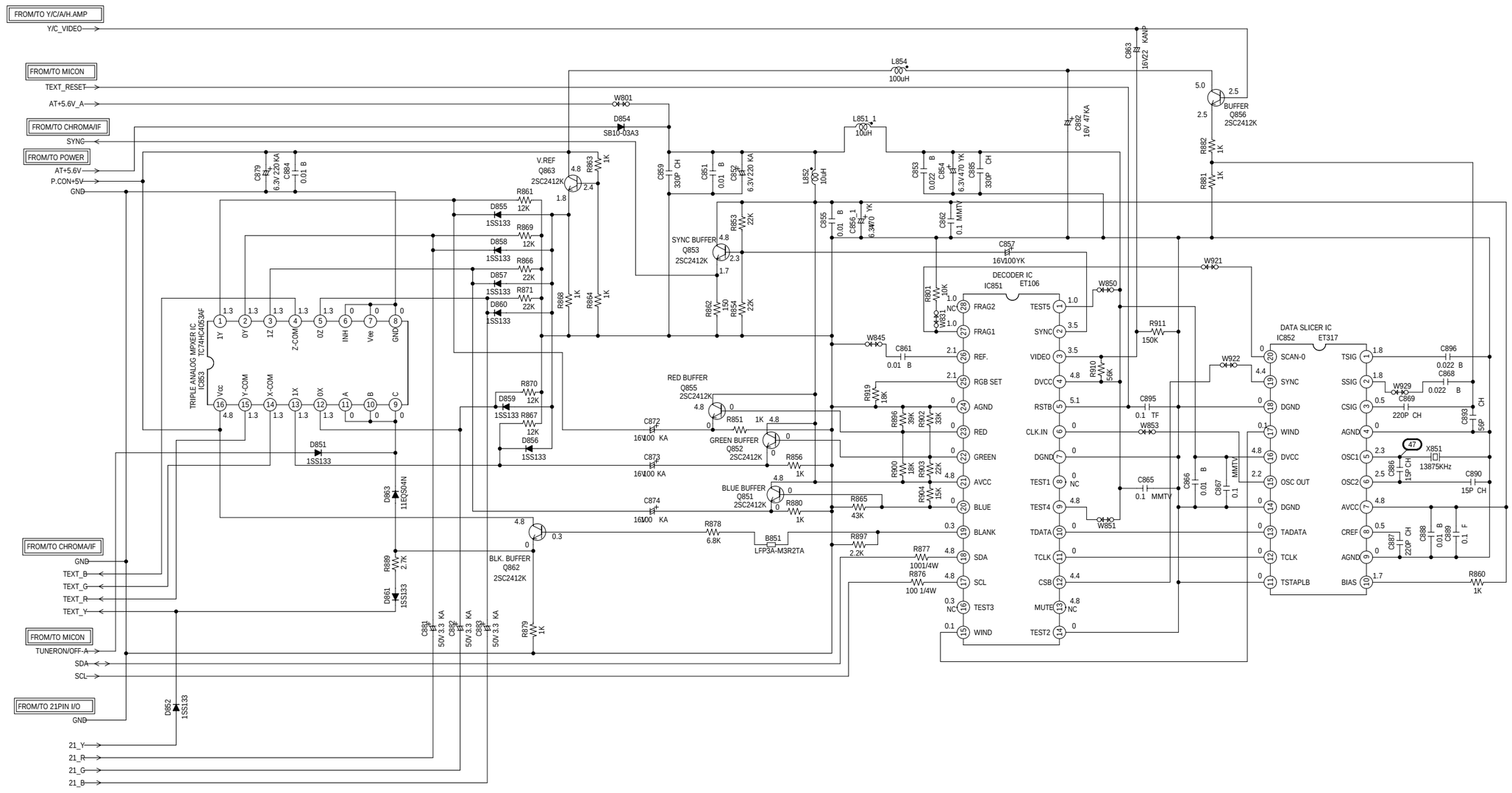
PCB010
VMX193

T'TEXT SCHEMATIC DIAGRAM

(SYSCON PCB)

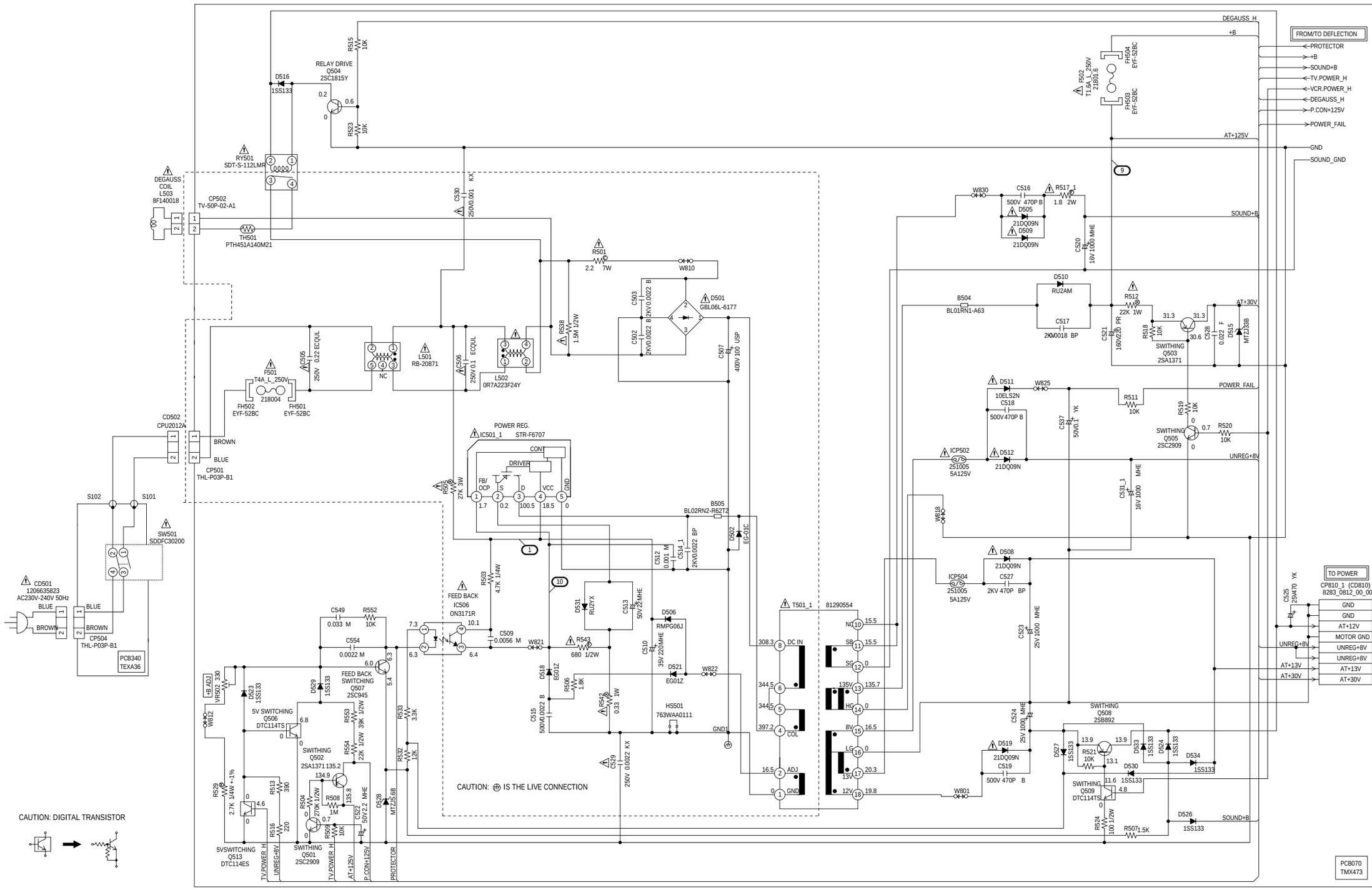


NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP
IS NON POLAR ONE.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

TV POWER SCHEMATIC DIAGRAM(MAIN PCB)



CAUTION: DIGITAL TRANSISTOR

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

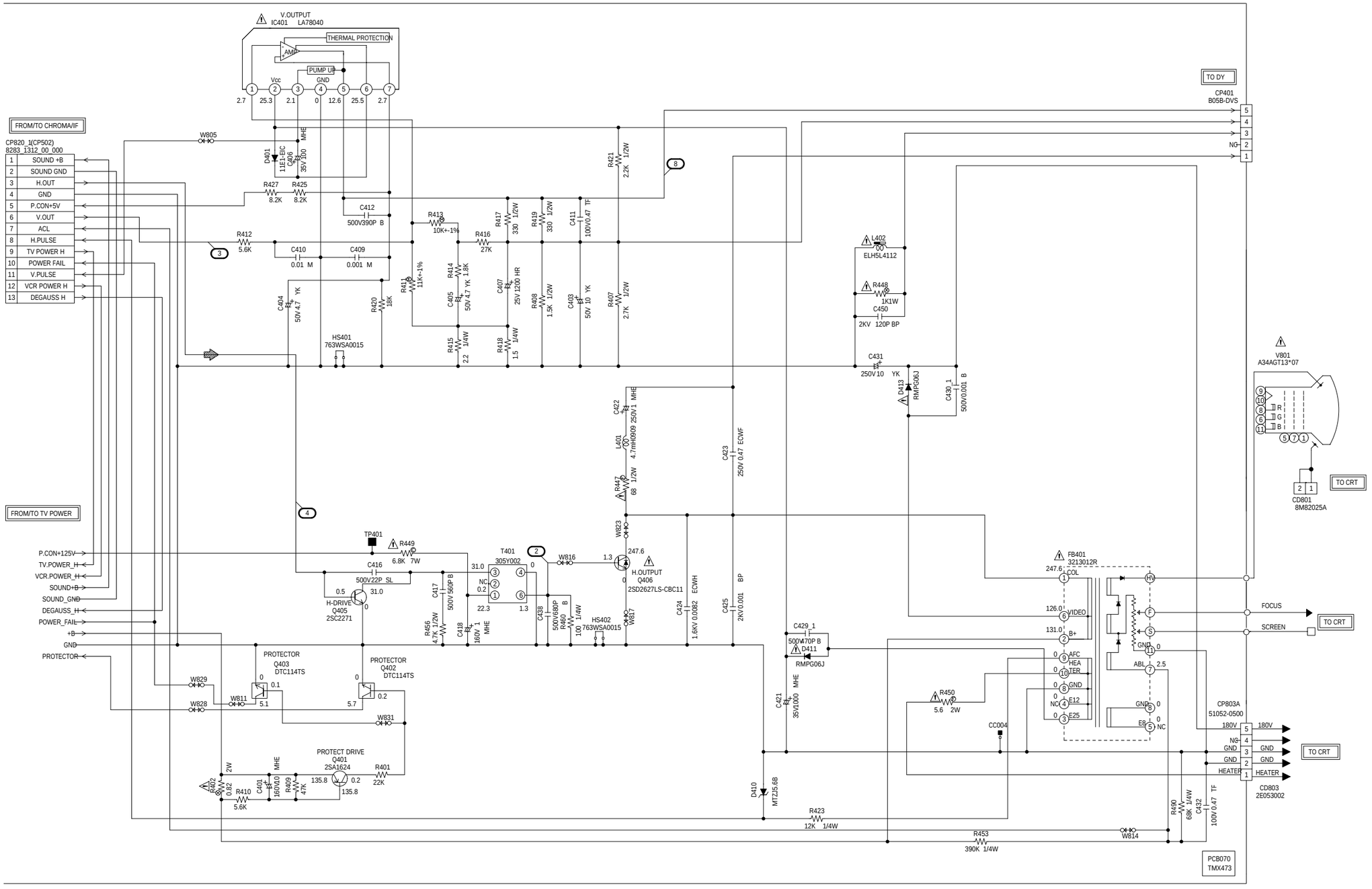
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

DEFLECTION SCHEMATIC DIAGRAM

(MAIN PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

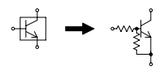
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

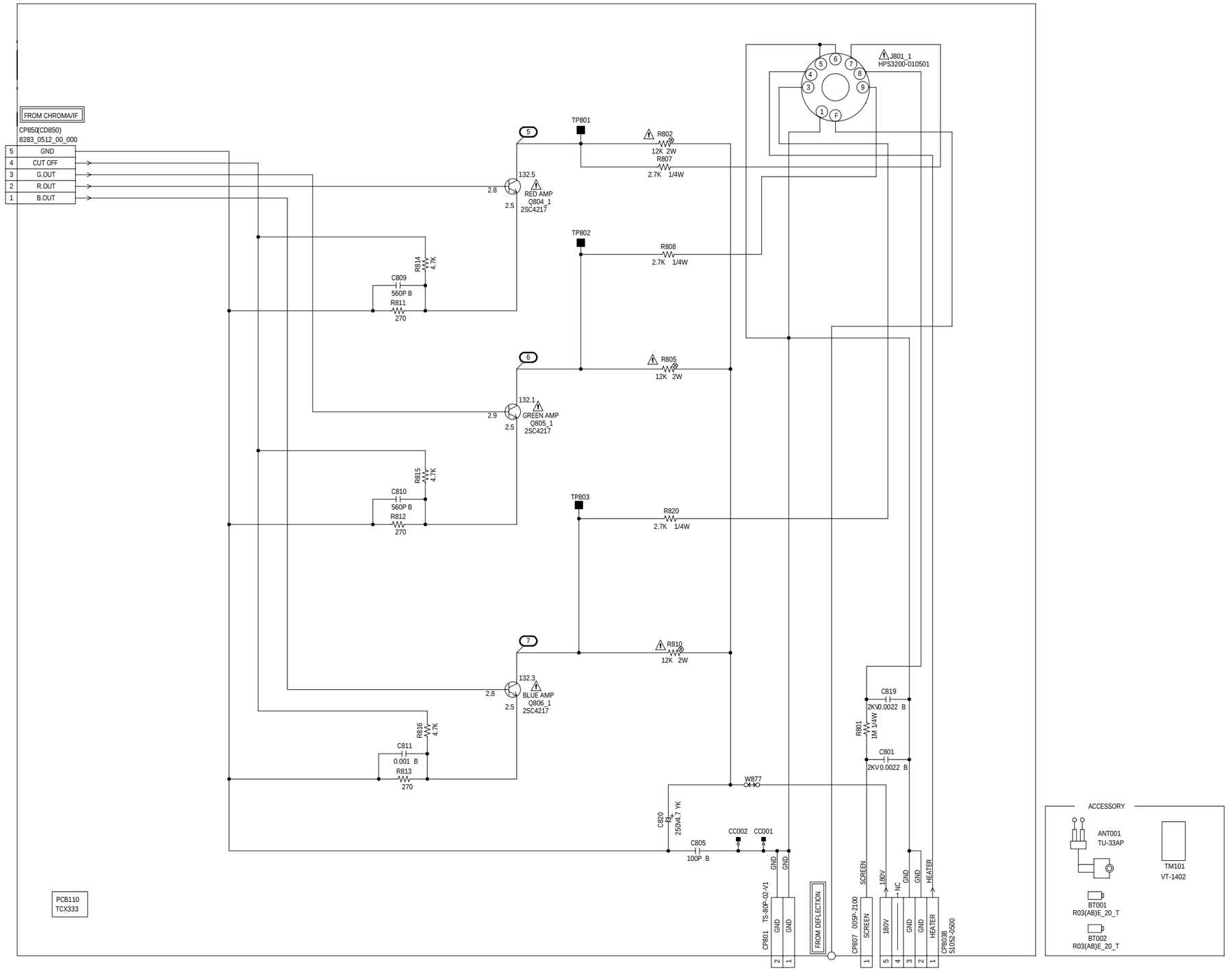
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY.USE ONES DESCRIBED IN PARTS LIST ONLY 。

CAUTION: DIGITAL TRANSISTOR



CRT SCHEMATIC DIAGRAM

(CRT PCB)



CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

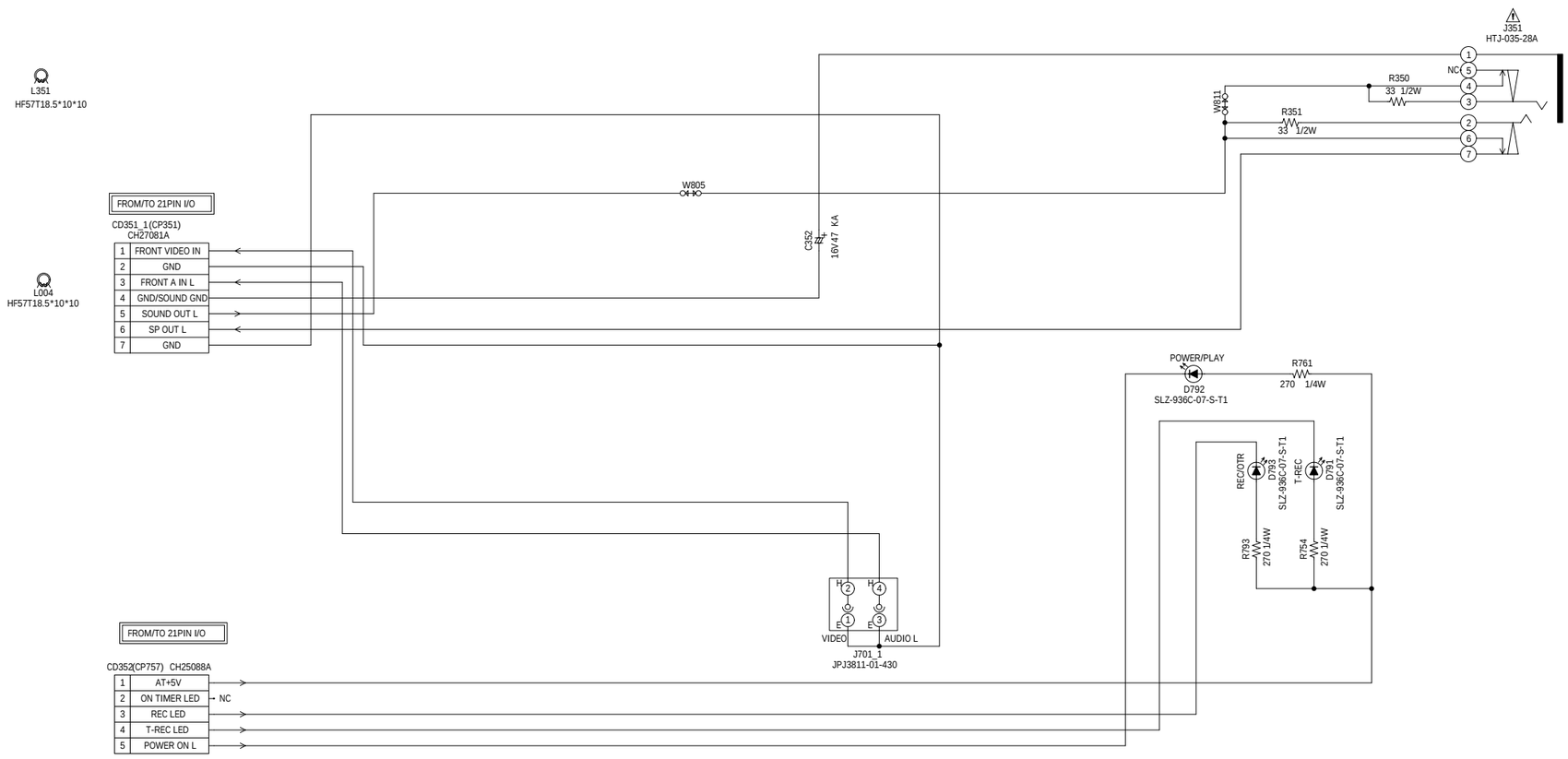
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

OPERATION SCHEMATIC DIAGRAM

(OPERATION PCB)



PCB030
TE9A16

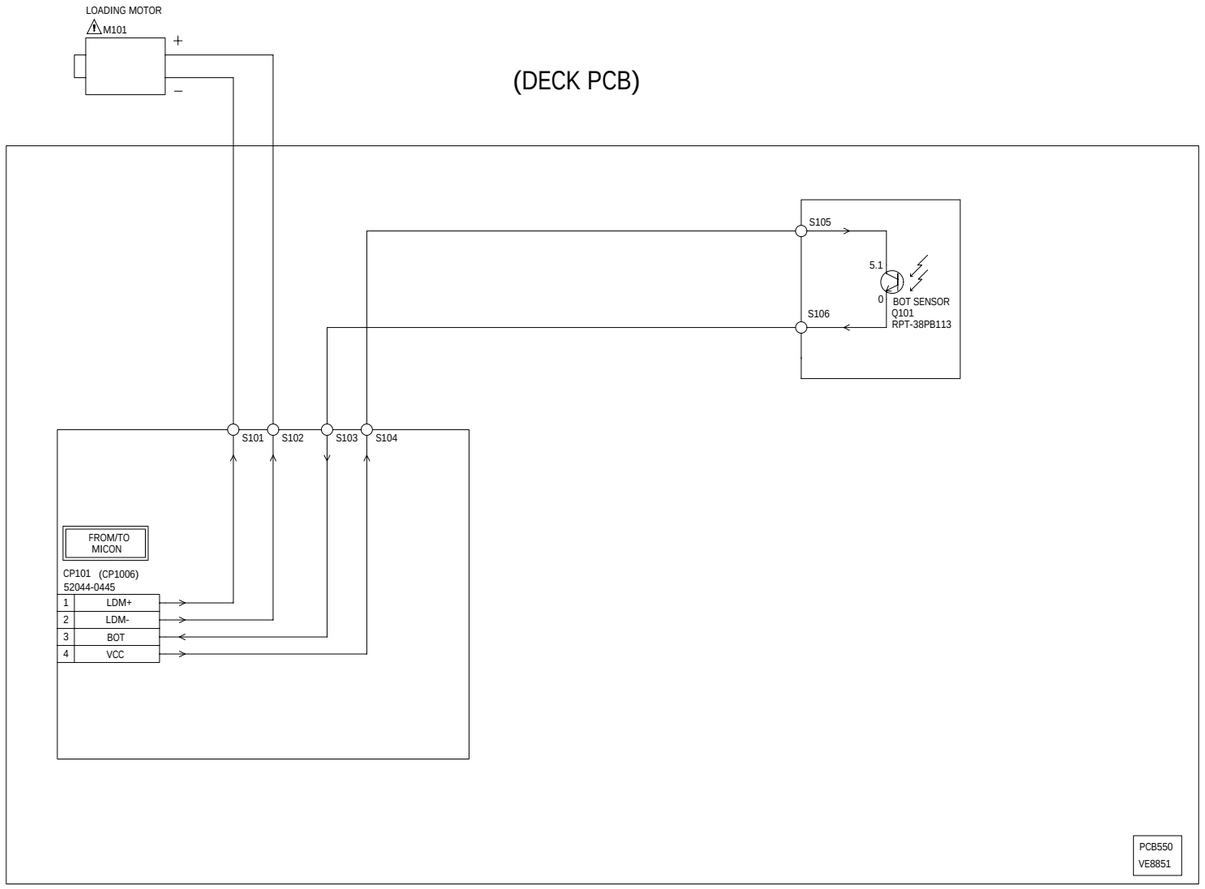
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

DECK SCHEMATIC DIAGRAM



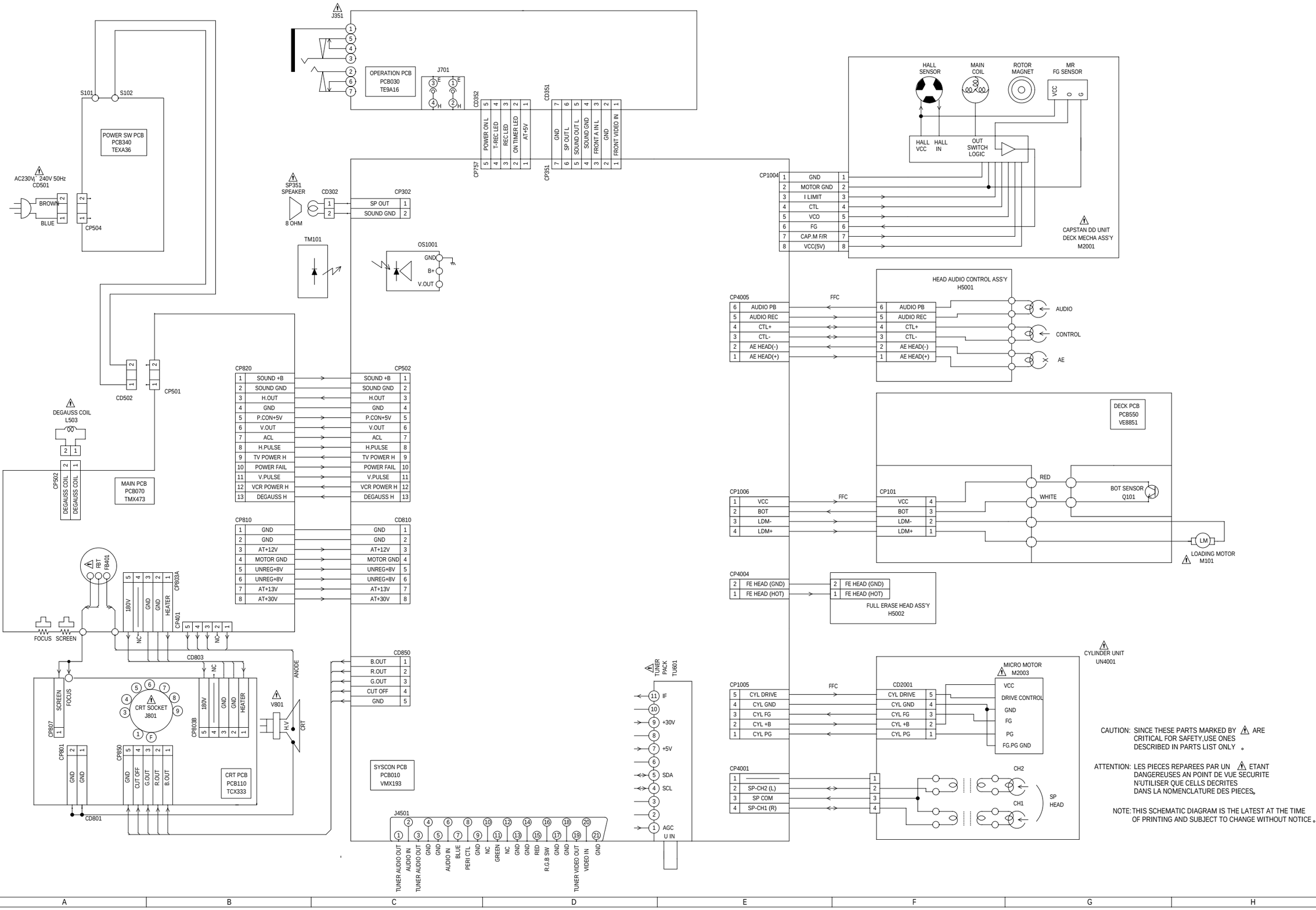
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK。

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

INTERCONNECTIO SCHEMATIC DIAGRAM



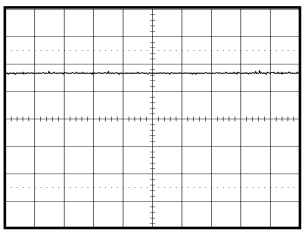
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

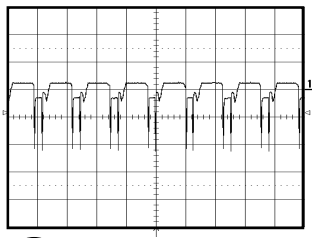
WAVEFORMS

TV POWER

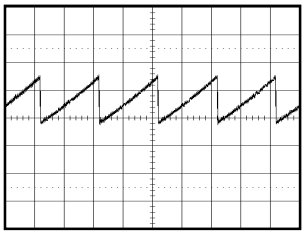


① 5V 0.1ms/div

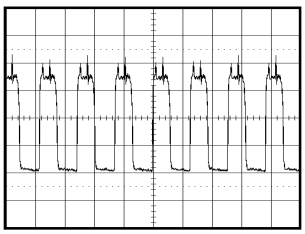
DEFLECTION



② 5V 50µs/div

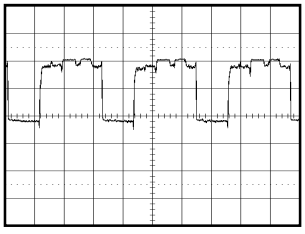


③ 0.5V 10ms/div

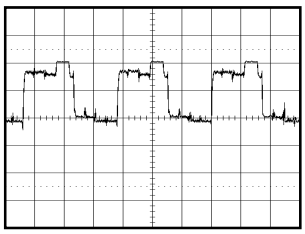


④ 200mV 50µs/div

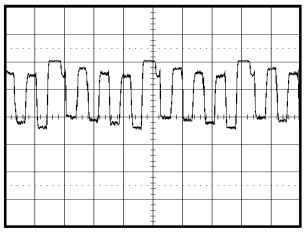
CRT



⑤ 2V 20µs/div

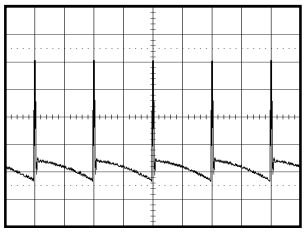


⑥ 20V 20µs/div



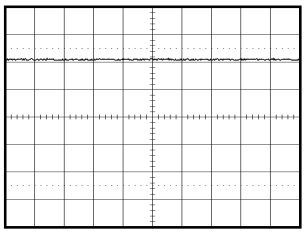
⑦ 20V 20µs/div

DEFLECTION

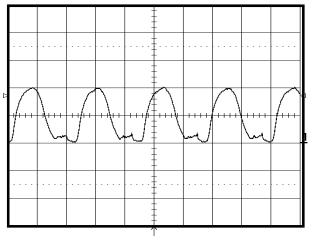


⑧ 10V 10ms/div

TV POWER

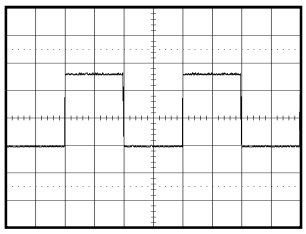


⑨ 20V 10ms/div

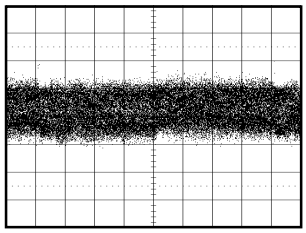


⑩ 2V 5µs/div

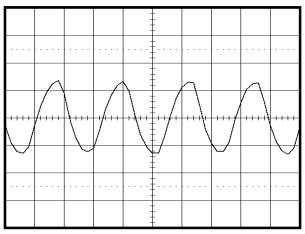
Y/C/AUDIO/HEAD AMP



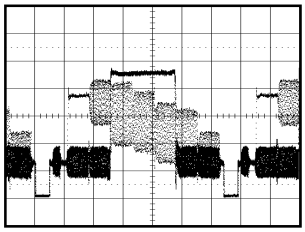
⑪ PB
2V 10ms/div



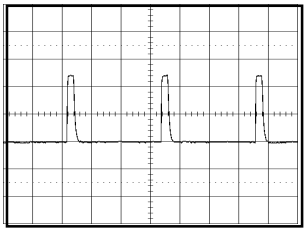
⑫ PB
10mV 5ms/div



⑬ POWER ON
200mV 50ns/div



⑭ POWER ON
0.5V 10µs/div

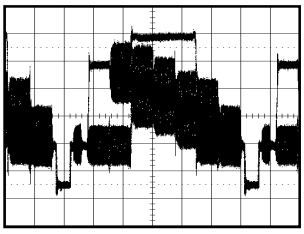


⑮ POWER ON
2V 20µs/div

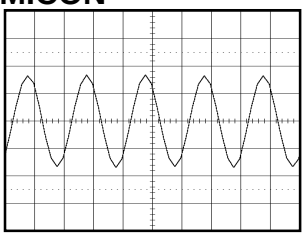
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

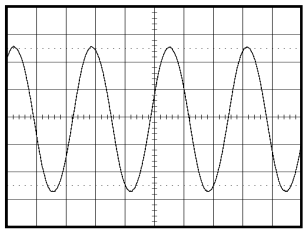
MICON



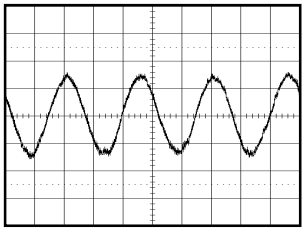
⑯ POWER ON
200mV 10μs/div



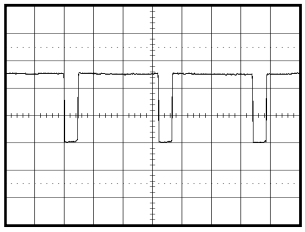
㉑ POWER ON
1V 50ns/div



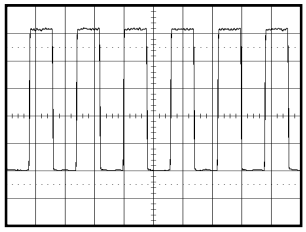
㉖ PB
50mV 0.5ms/div



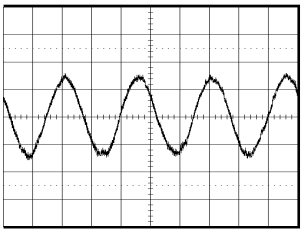
⑰ POWER ON
50mV 1ms/div



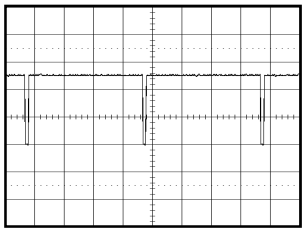
㉒ POWER ON
1V 20μs/div



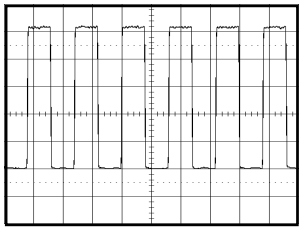
㉗ PB
1V 0.5μs/div



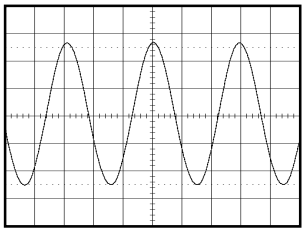
⑱ POWER ON
50mV 1ms/div



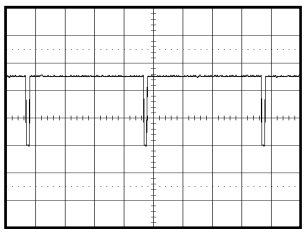
㉓ POWER ON
2V 20μs/div



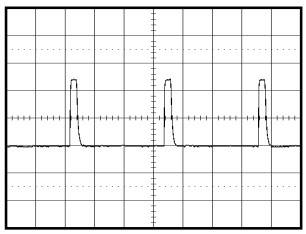
㉘ PB
1V 0.5μs/div



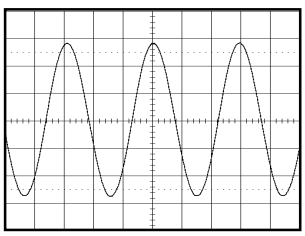
⑲ REC
10V 5μs/div



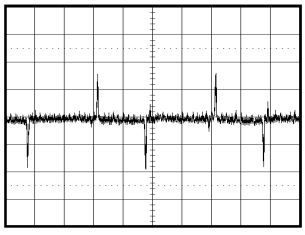
㉔ POWER ON
2V 5ms/div



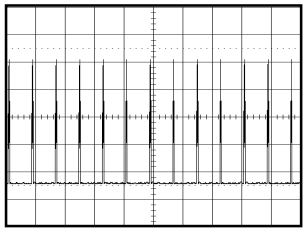
㉙ PB
2V 20μs/div



⑳ REC
10V 5μs/div



㉕ PB
50mV 10ms/div

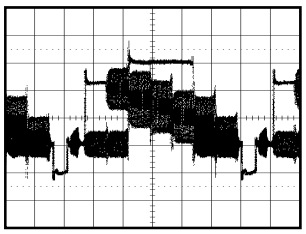


㉚ PB
1V 50ms/div

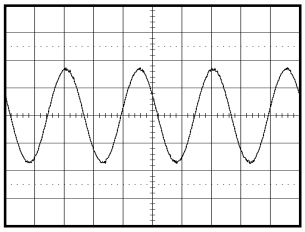
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

21PIN/IN/OUT

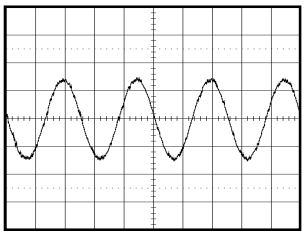


(31) POWER ON
0.5V 10μs/div

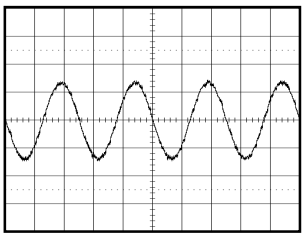


(32) POWER ON
20mV 1ms/div

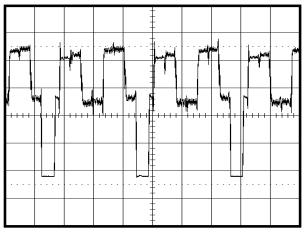
CHROMA/IF



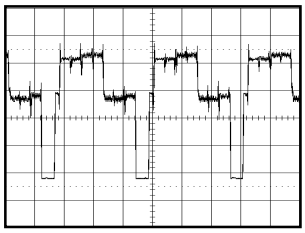
(33) POWER ON
5mV 1ms/div



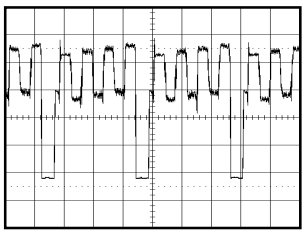
(34) POWER ON
5mV 1ms/div



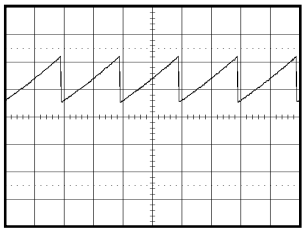
(35) POWER ON
0.5V 20μs/div



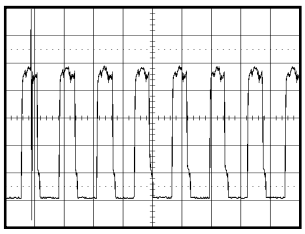
(36) POWER ON
0.5V 20μs/div



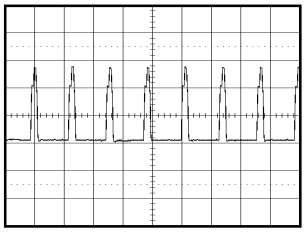
(37) POWER ON
0.5V 20μs/div



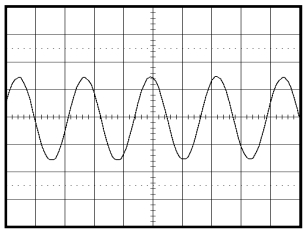
(38) POWER ON
0.5V 10ms/div



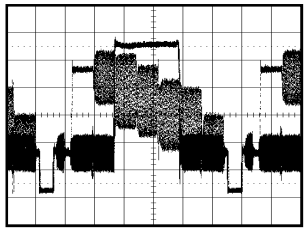
(39) POWER ON
200mV 50μs/div



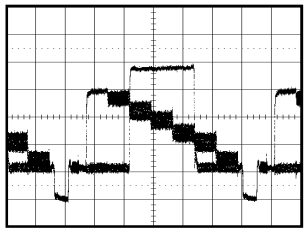
(40) POWER ON
2V 50μs/div



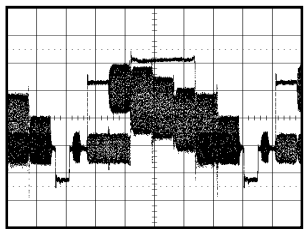
(41) POWER ON
200mV 0.1μs/div



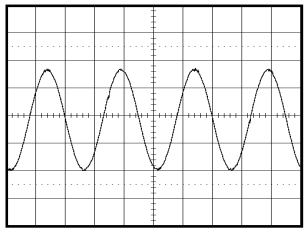
(42) POWER ON
200mV 10μs/div



(43) POWER ON
10mV 10μs/div



(44) POWER ON
0.5V 10μs/div

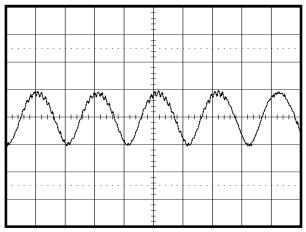


(45) POWER ON
200mV 1ms/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

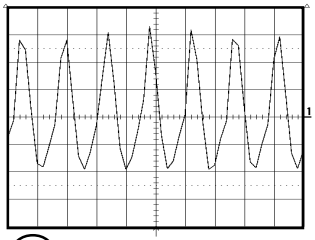
WAVEFORMS

SOUND AMP



㊻ REC
0.5V 0.5ms/div

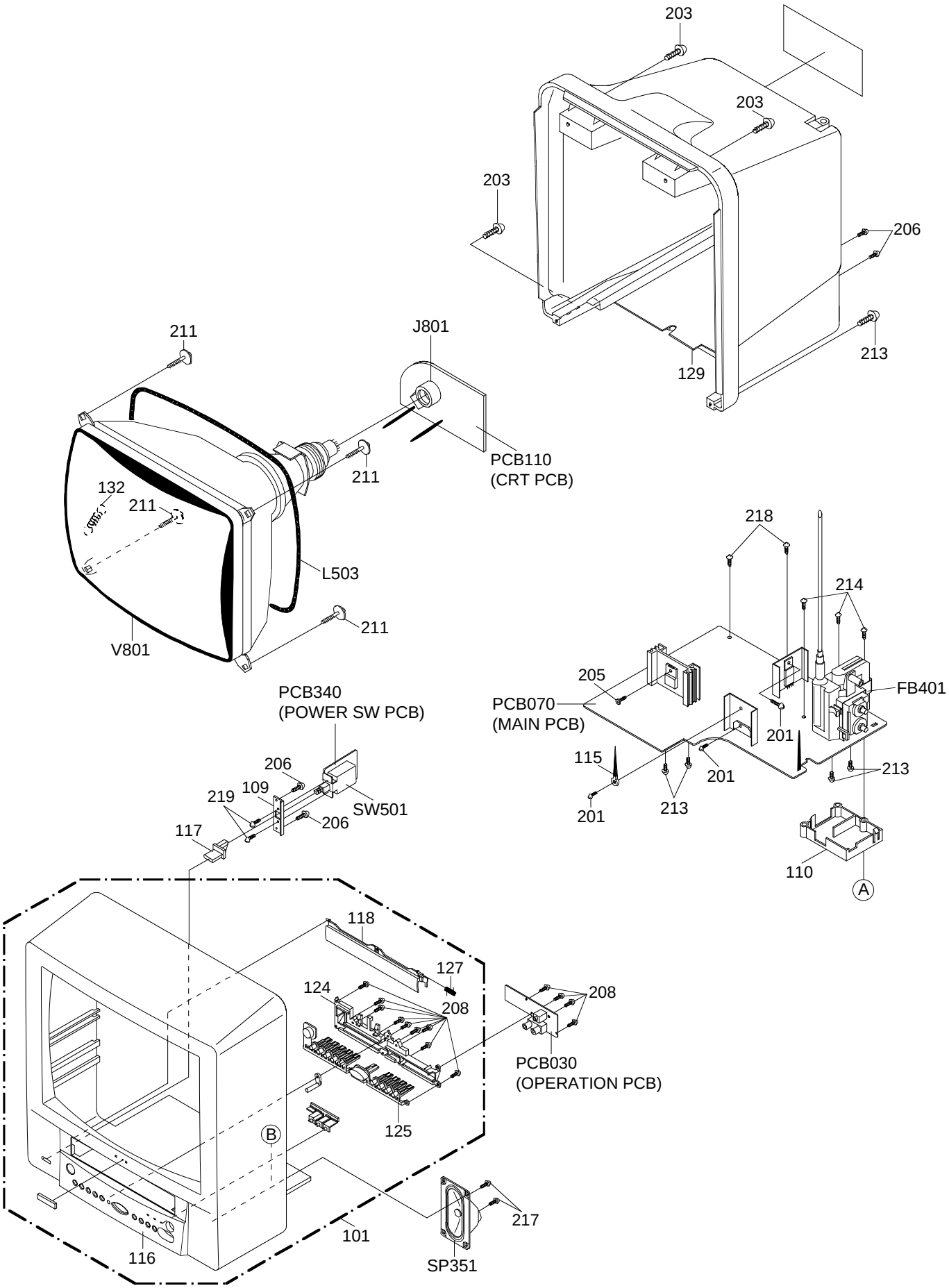
T'TEXT



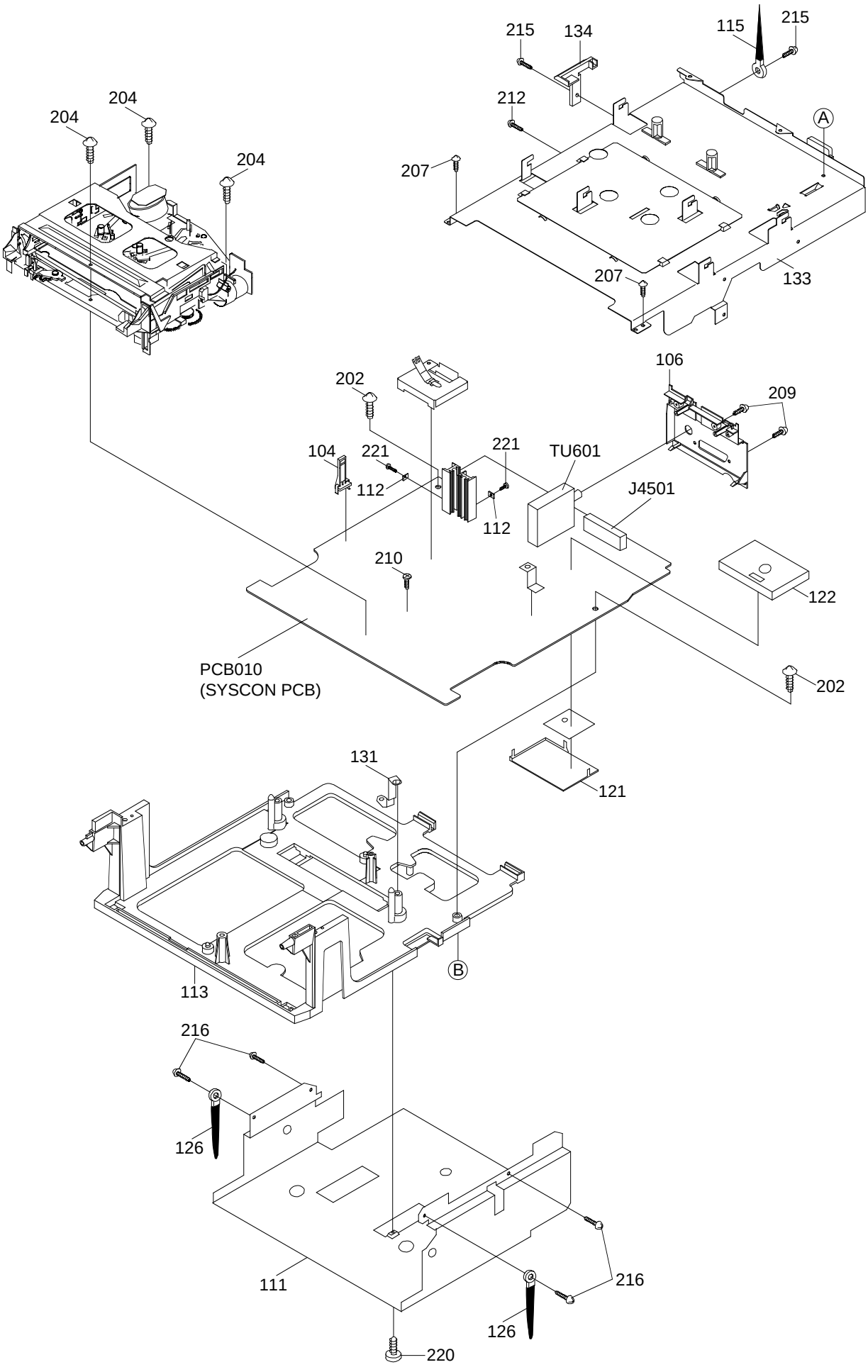
㊼ POWER ON
200mV 50ns/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

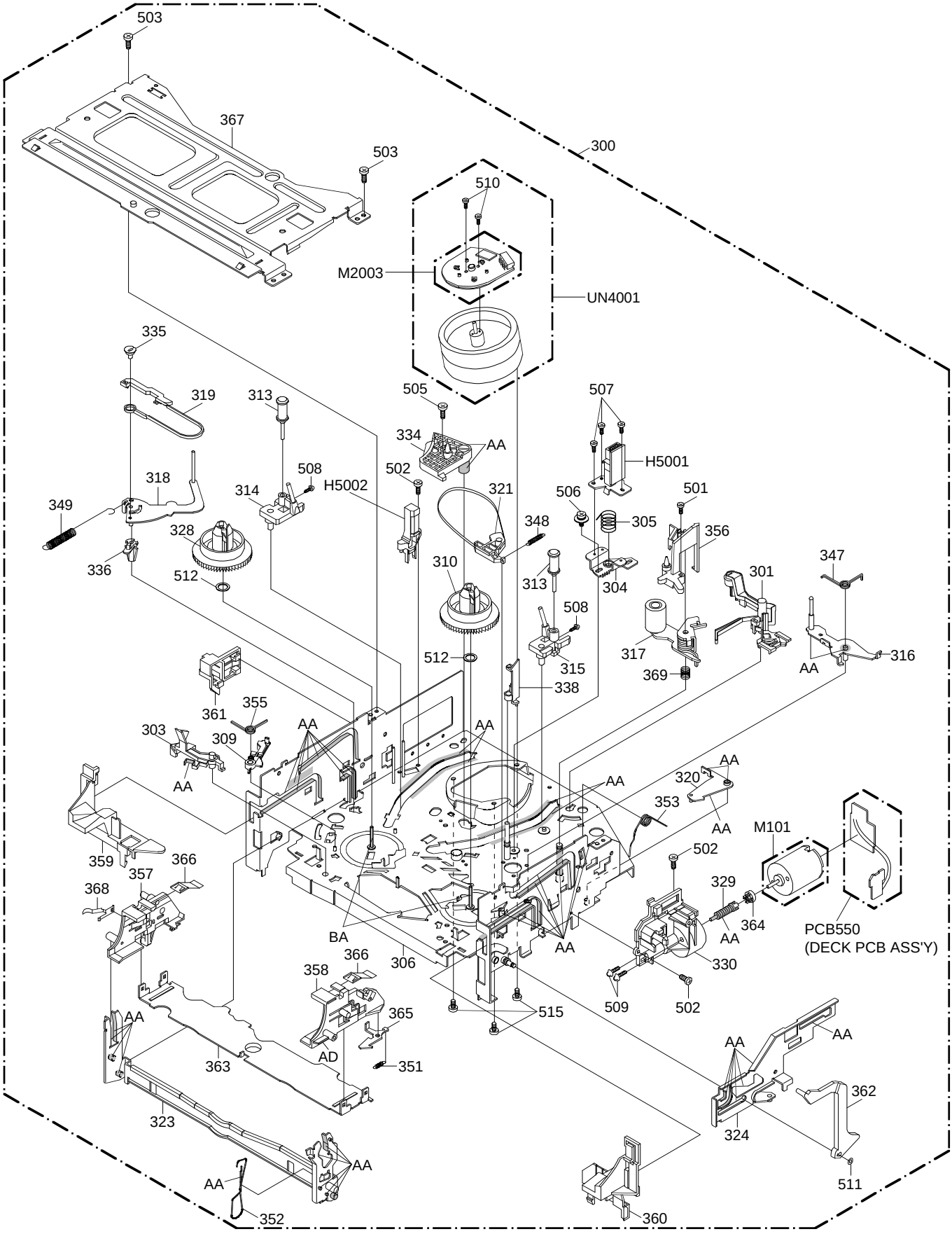
MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW



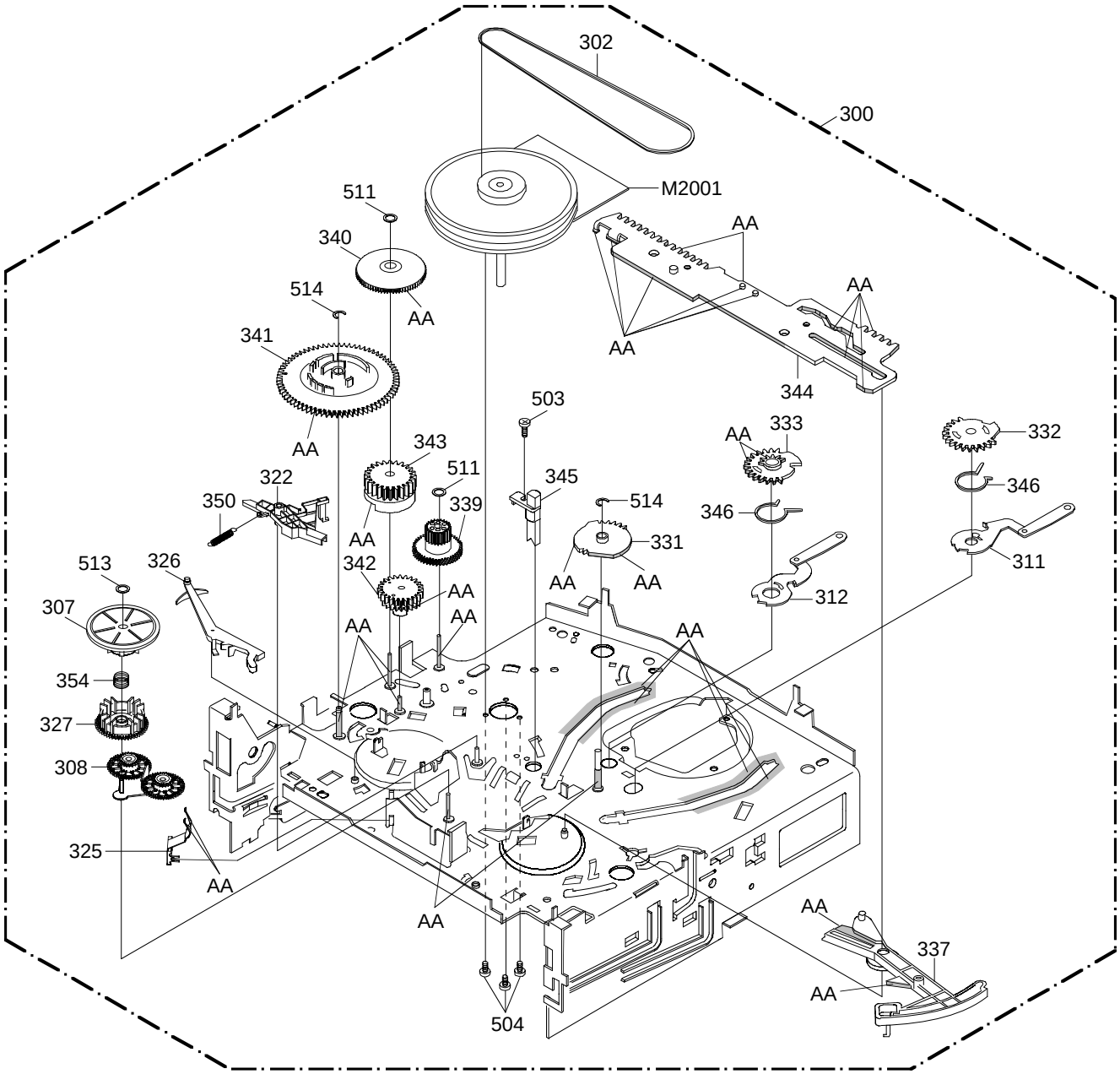
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	MARK
GREASE	AA
OIL	BA

NOTE: Applying positions AA and BA for the grease or oil are displayed for this section.
Check if the correct grease or oil is applied for each position.

CHASSIS EXPLODED VIEW (BOTTOM VIEW)



CLASS	MARK
GREASE	AA
OIL	BA

NOTE: Applying positions AA and BA for the grease or oil are displayed for this section.
Check if the correct grease or oil is applied for each position.

MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
101	BZ610064	A57054A720	CABINET,FRONT ASS'Y	
104	BZ710178	85OP700036	HOLDER,EOT SENSOR	
106	BZ710174	771WPA0232	PLATE,JACK	
109	BZ710223	752WSAA025	PLATE,POWER SW	
110	BZ710011	761WPA0145	HOLDER,FBT	
111	BZ710225	752WSA0147	PLATE,SHIELD BOTTOM	
112	BZ710082	769WSF0001	METAL SPACER	
113	BZ710238	761WPA0164	HOLDER,DECK	
115	BZ710039	8995034000	CORD CLIP UL CO.	
116	BZ710227	701WPJ0949	CABINET,FRONT	
117	BZ710228	735WPJ0161	BUTTON,POWER	
118	BZ710229	712WPJ0704	FLAP	
121	BZ710230	752WSA0149	SHIELD,COVER	
122	BZ710231	752WSA0191	SHIELD,CASE	
124	BZ710277	738WPA0019	BUTTON,BASE	
125	BZ710232	735WPJ0160	BUTTON,FRAME	
126	BZ710233	899EFB0692	COATING CLIP EFB0692	
127	BZ710010	743WKA0032	SPRING,FLAP	
129	BZ710234	702WPB0022	CABINET,BACK	
131	BZ710235	753WSA0120	PLATE,BOTTOM-EARTH	
132	BZ710278	741WUA0024	SPRING,EARTH	
133	BZ710237	752WSAA032	PLATE,DECK SHIELD ASS'Y	
134	BZ710012	761WPA0151	HOLDER,M/PCB	
201	BZ710239	8109I30A04	SCREW,TAP TITE(B) WH7	3x10
202	BZ710036	8117540B04	SCREW,TAPPING(B0) TRUSS	4x20
203	BZ710035	8117540A64	SCREW,TAPPING(B0) TRUSS	4x16
204	BZ710034	8117140A24	SCREW,TAPPING(B0) PAN	4x12
205	BZ710026	810B130A04	SCREW/WASHER(B)	M3x10
206	BZ710032	8110630A24	SCREW,TAP TITE(P) BRAZIER	3x12
207	BZ710030	8110630804	SCREW,TAP TITE(P) BRAZIER	3x8
208	BZ710031	8110630A04	SCREW,TAP TITE(P) BRAZIER	3x10
209	BZ710246	8110630A22	SCREW,TAP TITE(P) BRAZIER	3x12
210	BZ710028	8110330804	SCREW,TAP TITE(P) FLAT	3x8
211	BZ710033	8111J50D05	SCREW,TAPPING (A) GW22	5x35
212	BZ710017	8107226604	SCREW,TAP TITE(S) BIND	2.6x6
213	BZ710019	8109630802	SCREW,TAP TITE(B) BRAZIER	3x8
214	BZ710024	810A130B04	SCREW/WASHER(A)	M3x20
215	BZ710240	8107230804	SCREW,TAP TITE(S) BIND	3x8
216	BZ710147	8107630604	SCREW,TAP TITE(S) BRAZIER	3x6
217	BZ710029	8110330A04	SCREW,TAP TITE(P) FLAT	3x10
218	BZ710021	810A130604	SCREW/WASHER(A)	M3x6
219	BZ710241	810A130504	SCREW/WASHER(A)	M3x5
220	BZ710158	8110630604	SCREW,TAP TITE(P) BRAZIER	3x6
221	BZ710022	810A130804	SCREW/WASHER(A)	M3x8
---	BZ710014	792WHA0258	PACKAGE,TOP	
---	BZ710015	792WHA0259	PACKAGE,BOTTOM	
---	BZ710242	793WCD1256	GIFT BOX	
---	BZ614113	J5705401	INSTRUCTION BOOK	

CHASSIS REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
300	BZ610065	A57002N420A	DECK ASSY	A57002N420A
301	BZ710073	85OA500022	AHC ASS'Y	
302	BZ710193	85OP200290	BELT,CAPSTAN (S)	
303	BZ710132	85OP900710	LEVER,REC	
304	BZ710094	85OP500083	BASE,AC HEAD	
305	BZ710112	85OP800324	SPRING,AC HEAD	
306	BZ710194	85OA000367	MAIN CHASSIS ASS'Y (S-Z)	
307	BZ710195	85OA200082	CLUTCH ASS'Y(S2)	
308	BZ710196	85OA200080	ARM,IDLER ASS'Y (S)	
309	BZ710197	85OP600556	ARM,SS BRAKE (S)	
310	BZ710198	85OP200292	REEL,T (S)	
311	BZ710063	85OA300061	LOADING ARM S ASS'Y	
312	BZ710064	85OA300062	LOADING ARM T ASS'Y	
313	BZ710199	85OA400209	GUIDE ROLLER ASS'Y	
314	BZ710069	85OA400188	BASE,INCL S ASS'Y	
315	BZ710070	85OA400196	BASE,INCL T(S) ASS'Y	
316	BZ710200	85OA400199	P5-3 ARM ASS'Y(S)	
317	BZ710072	85OA400205	PINCH ROLLER BLOCK	
318	BZ710065	85OA400175	TENSION ARM ASS'Y	
319	BZ710201	85OA400184	TENSION BAND ASS'Y (S)	
320	BZ710067	85OA400178	PINCH ROLLER LEVER ASS'Y	
321	BZ710202	85OA600188	BRAKE T ASS'Y (S):BLACK	
	BZ710311	85OA600196	BRAKE T ASS'Y (S):WHITE	
322	BZ710203	85OA600191	CAP BRAKE ASS'Y(S)	
323	BZ710076	85OA900213	LINK ASS'Y	
324	BZ710077	85OA900216	LINK LEVER ASS'Y	
325	BZ710204	85OP200284	LEVER,CLUTCH (S)	
326	BZ710205	85OP200285	ACTUATOR,CLUTCH	
327	BZ710206	85OP200298	GEAR,COUPLING(S2)	
328	BZ710207	85OP200291	REEL,S (S)	
329	BZ710096	85OP600541	WORM	
330	BZ710105	85OP600563	BRACKET,MOTOR	
331	BZ710086	85OP300178	GEAR,MAIN LOADING	
332	BZ710087	85OP300179	GEAR,LOADING S	
333	BZ710088	85OP300180	GEAR,LOADING T	
334	BZ710208	85OP300187	HOLDER,LOADING GEAR (S-Z)	
335	BZ710090	85OP400472	ADJUST,TENSION	
336	BZ710093	85OP400492	HOLDER,TENSION	
337	BZ710092	85OP400490	LEVER,TENSION	
338	BZ710091	85OP400475	COVER,P4	
339	BZ710097	85OP600543	GEAR,JOINT	
340	BZ710098	85OP600544	GEAR,MIDDLE	
341	BZ710209	85OP600554	CAM,MAIN (S)	
342	BZ710101	85OP600546	CAM,P5	
343	BZ710172	85OP600565	CAM,PINCH ROLLER	
344	BZ710210	85OP600561	ROD,MAIN(S)	
345	BZ710106	85OP700035	REFLECTOR,LED	
346	BZ710107	85OP800318	SPRING,LOADING GEAR	
347	BZ710211	85OP800334	SPRING,P5 (S)	
348	BZ710212	85OP800335	SPRING,BRAKE T (S)	
349	BZ710110	85OP800322	SPRING,TENSION	
350	BZ710213	85OP800336	SPRING,CAP BRAKE (S)	
351	BZ710118	85OP800342	SPRING,LOCKER (S)	
352	BZ710113	85OP800326	SPRING,LINK	
353	BZ710114	85OP800328	SPRING,DAMPER	
354	BZ710115	85OP800330	SPRING,RING	
355	BZ710214	85OP800337	SPRING,SS BRAKE (S)	
356	BZ710119	85OP900680	OPENER,CASS	
357	BZ710215	85OP900704	CASS SIDE L:BLACK	
	BZ710312	85OP900731	CASS SIDE L:WHITE	
358	BZ710121	85OP900684	CASS SIDE R:BLACK	
	BZ710313	85OP900732	CASS SIDE R:WHITE	
359	BZ710131	85OP900709	TAPE GUIDE L (P,R):BLACK	
	BZ710314	85OP900728	TAPE GUIDE L (P,R):WHITE	
360	BZ710122	85OP900686	TAPE GUIDE R:BLACK	
	BZ710315	85OP900729	TAPE GUIDE R:WHITE	
361	BZ710216	85OP900714	COVER,SENSOR L3	
362	BZ710123	85OP900688	LEVER,FLAP	
363	BZ710124	85OP900690	CASS HOLDER	
364	BZ710095	85OP600540	DRIVER,WORM	
365	BZ710217	85OP900713	LOCKER,R2	
366	BZ710127	85OP900694	SPRING,PACK	
367	BZ710128	85OP900695	BRACKET,TOP	
368	BZ710129	85OP900696	SPRING,CASS EARTH	
369	BZ710117	85OP800341	SPRING,P/R ARM	

CHASSIS REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
501	BZ710048	8107126A04	SCREW,TAP TITE(S) PAN	2.6x10
502	BZ710049	8107226804	SCREW,TAP TITE(S) BIND	2.6x8
503	BZ710017	8107226604	SCREW,TAP TITE(S) BIND	2.6x6
504	BZ710050	8109126604	SCREW,TAP TITE(B) PAN	2.6x6
505	BZ710052	810A126804	SCREW/WASHER(A)	M2.6x8
506	BZ710053	810B126404	SCREW/WASHER(B)	M2.6x4
507	BZ710046	8102120604	SCREW,PAN	M2x6
508	BZ710045	8102120304	SCREW,PAN	M2x3
509	BZ710047	8102130304	SCREW,PAN	M3.0x3.0
510	BZ710051	810A123504	SEMS A	M2.3x5.0
511	BZ710055	82P266005N	POLYSLIDER WASHER(CUT)	2.6x6.0xT0.5
512	BZ710218	82Q2647C5N	POLYSLIDER WASHER	2.6x4.7xT0.25
513	BZ710054	82P184505N	POLYSLIDER WASHER(CUT)	1.8x4.5xT0.5
514	BZ710058	83ETW30000	E-RING	3.0
515	BZ710219	810A126504	SCREW/WASHER(A)	M2.6x5
CP101	BZ614040	069R740018	CONNECTOR PCB SIDE	52044-0445
H5001	BZ710040	1523D91034	HEAD (AUDIO CONTROL)	HVMXA1072A
H5002	BZ710041	1543D02013	HEAD (FULL ERASE)	HVFHP0032A
⚠ M101	BZ710044	1596P78001	MOTOR (LOADING)	MXN13FB11H
⚠ M2001	BZ710159	1594J98008	CAPSTAN DD UNIT	EP15BC
M2003	BZ710042	1589V11007	MICRO MOTOR	EP14BD
PCB550	BZ610053	A4C831B550	DECK PCB ASS'Y	VE8851
Q101	BZ410026	0000700320	TRANSISTOR,PHOTO	RPT-38PB113
⚠ UN4001	BZ610066	A4D120B500	CYLINDER UNIT ASSY	A4D120B500

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		RESISTORS		
R402	BZ210009	R3X28AR82J	R,METAL	0.82 OHM 2W
⚠ R447	BZ210041	R635U2680J	R,FUSE	68 OHM 1/2W
⚠ R448	BZ210003	R3K181102J	R,METAL	1K OHM 1W
⚠ R449	BZ210018	R5X2CE682J	R,CEMENT	6.8K OHM 7W
⚠ R450	BZ210042	R6558A5R6J	R,FUSE	5.6 OHM 2W
⚠ R501	BZ210043	R5Y2CE2R2J	R,CEMENT	2.2 OHM 7W
⚠ R505	BZ210044	R3X28B273J	R.METAL	27K OHM 3W
⚠ R512	BZ210045	R3X181223J	R,METAL	22K OHM 1W
R517	BZ210046	R6558A1R8J	R,FUSE	1.8 OHM 2W
R538	BZ210047	R011K2155J	RC	1.5M OHM 1/2W
R542	BZ210048	R3X181R33J	R,METAL	0.33 OHM 1W
⚠ R543	BZ210049	R635U2681J	R,FUSE	680 OHM 1/2W
R667	BZ210011	R3X28B1R8J	R,METAL	1.8 OHM 3W
⚠ R802	BZ210050	R3X18A123J	R,METAL OXIDE	12K OHM 2W
⚠ R805	BZ210050	R3X18A123J	R,METAL OXIDE	12K OHM 2W
⚠ R810	BZ210050	R3X18A123J	R,METAL OXIDE	12K OHM 2W
⚠ R1005	BZ210020	R615J12R7J	R,FUSE	2.7 OHM 1W
		CAPACITORS		
C357	BZ110044	E02LT3102M	CE	1000 UF 25V
C407	BZ110045	E62I03122M	CE	1200 UF 25V
C421	BZ110014	E5EZ04102M	CE	1000 UF 35V
C423	BZ110030	P411F3474J	CMPP	0.47 UF 250V ECWF
C424	BZ110046	P414F9822H	CMPP	0.0082UF 1.6KV ECWH
C425	BZ110002	C01BBP713K	CC	0.001 UF 2KV BP
C450	BZ110047	C01BBP7B2K	CC	120 PF 2KV BP
C502	BZ110009	C13HB07H3K	CC	0.0022UF 2KV B
C503	BZ110009	C13HB07H3K	CC	0.0022UF 2KV B
⚠ C505	BZ110025	P2122B224M	CMP	0.22 UF 250V ECQUL
⚠ C506	BZ110035	P2122B104M	CMP	0.1 UF 250V ECQUL
⚠ C507	BZ110048	E52C0H101M	CE	100 UF 400V
C514	BZ110003	C01BBP7H3K	CC	0.0022UF 2KV BP
C517	BZ110049	C01BBP7G3K	CC	0.0018UF 2KV BP
C521	BZ110013	E53VFB221M	CE	220 UF 160V
C522	BZ110050	E5EZT52R2M	CE	2.2 UF 50V
C523	BZ110017	E5EZT3102M	CE	1000 UF 25V
C524	BZ110017	E5EZT3102M	CE	1000 UF 25V
C525	BZ110041	E02LT3471M	CE	470 UF 25V
C527	BZ110005	C01BBP7Q2K	CC	470 PF 2KV BP
⚠ C529	BZ110051	CB3930MH3M	CC	0.0022UF 250V
⚠ C530	BZ110051	CB3930M13M	CC	0.001 UF 250V
C801	BZ110009	C13HB07H3K	CC	0.0022UF 2KV B
C819	BZ110009	C13HB07H3K	CC	0.0022UF 2KV B
C1003	BZ110052	E51XWP104Z	CE	0.1 F 5.5V
		DIODES		
D401	BZ410043	D2WT011E10	DIODE,SILICON	11E1-EIC
D410	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
⚠ D411	BZ410014	D2LTPG06J0	DIODE,SILICON	RMPG06J-G3
⚠ D413	BZ410014	D2LTPG06J0	DIODE,SILICON	RMPG06J-G3
⚠ D501	BZ410044	D4LZBL06L0	DIODE	GBL06L-6177
D502	BZ410045	D2BT0EG01C	DIODE,RECTIFER	EG-01C
⚠ D505	BZ410010	D28T21DQN9	DIODE SCHOTTKY	21DQ09N-TA2B1
D506	BZ410014	D2LTPG06J0	DIODE,SILICON	RMPG06J-G3
⚠ D508	BZ410010	D28T21DQN9	DIODE SCHOTTKY	21DQ09N-TA2B1
⚠ D509	BZ410010	D28T21DQN9	DIODE SCHOTTKY	21DQ09N-TA2B1
⚠ D510	BZ410028	D2BTRU2AM0	DIODE,SILICON	RU2AM V1
⚠ D511	BZ410011	D28TELS2N2	DIODE RECTIFER	10ELS2N-TA1B2
⚠ D512	BZ410010	D28T21DQN9	DIODE SCHOTTKY	21DQ09N-TA2B1
D515	BZ410037	D97U03301B	DIODE,ZENER	MTZJ33B T-77
D516	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D518	BZ410046	D2BT0EG01Z	DIODE,SILICON	EG01Z-V0
⚠ D519	BZ410010	D28T21DQN9	DIODE SCHOTTKY	21DQ09N-TA2B1
D521	BZ410046	D2BT0EG01Z	DIODE,SILICON	EG01Z-V0
D523	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D524	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D526	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D527	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D528	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D529	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D530	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D531	BZ410047	D2BTRU2YX0	DIODE,SILICON	RU2YX-V1
D533	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D534	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D601	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D604	BZ410025	D28T11ESN1	DIODE,SILICON	11ES1N-TA1B2
D605	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D606	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D791	BZ410005	002132Q130	LED	SLZ-936C-07-S-T1

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description		
			DIODES		
D792	BZ410005	002132Q130	LED	SLZ-936C-07-S-T1	
D793	BZ410005	002132Q130	LED	SLZ-936C-07-S-T1	
D851	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77	
D852	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77	
D854	BZ410008	D23U1003A3	DIODE,SCHOTTKY	SB10-03A3	
D855	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77	
D856	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77	
D857	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77	
D858	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77	
D859	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77	
D860	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77	
D861	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77	
D863	BZ410012	D28TQS04N0	DIODE SCHOTTKY	11EQS04N-TA1B2	
D1001	BZ410015	D2LXE65800	DIODE,SILICON	1N4005E-6580-G23	
D1002	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77	
D1003	BZ410004	0010600060	LED	SID1050CM	
D1004	BZ410015	D2LXE65800	DIODE,SILICON	1N4005E-6580-G23	
D1005	BZ410016	D92T1120B0	DIODE,ZENER	RD12FB-T7	
D1006	BZ410008	D23U1003A3	DIODE SCHOTTKY	SB10-03A3	
D1007	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77	
D1008	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77	
D1010	BZ410008	D23U1003A3	DIODE,SCHOTTKY	SB10-03A3	
D1011	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77	
D1012	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77	
D1014	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77	
D1015	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77	
D1016	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77	
D1017	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77	
D1018	BZ410012	D28TQS04N0	DIODE SCHOTTKY	11EQS04N-TA1B2	
D1019	BZ410012	D28TQS04N0	DIODE SCHOTTKY	11EQS04N-TA1B2	
D1023	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77	
D4003	BZ410048	D1VTB721Q0	DIODE SCHOTTKY	RB721QT-77	
D4202	BZ410025	D28T11ESN1	DIODE,SILICON	11ES1N-TA1B2	
D4503	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77	
D4510	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77	
D4511	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77	
			ICS		
⚠ IC351	BZ611001	I01DP75110	IC	AN7511	
⚠ IC401	BZ611025	I03TD80400	IC	LA78040	
⚠ IC501	BZ611026	I2BT067070	IC	STR-F6707	
⚠ IC506	BZ410001	000210001R	PHOTO COUPLER	ON3171R	
IC601	BZ611027	I03DE68120	IC	LA76812	
IC851	BZ611028	ICKD001060	IC	ET106	or
	BZ611043	ICKD002060	IC	ET206	
IC852	BZ611029	ICKD003170	IC	ET317	
IC853	BZ611030	I55JM4053A	IC	TC74HC4053AF	
⚠ IC1001	BZ611018	I07SQ69550	IC	BA6955N	
IC1002	BZ611022	IE1J0S31AH	IC	RE5VS31A	
IC1003	BZ611033	I1KA97809A	IC	KIA7809API	
IC1004	BZ611015	I1KA97805A	IC	KIA7805API	
IC1005	BZ611015	I1KA97805A	IC	KIA7805API	
IC1006	BZ611032	I54F50093A	IC	OEC0093A	
IC1099	BZ610055	A57054A015	IC	S-24C08ADPA-01	
IC4001	BZ610056	I04F38217F	IC	HA118217F	
IC4002	BZ610057	I03F647930	IC	LC74793/JM	
			TRANSISTORS		
Q401	BZ510004	TA3T016240	TRANSISTOR,SILICON	2SA1624-AA	
Q402	BZ510024	TNYTJ03001	COMPOUND TRANSISTOR	DTC114TSTP	
Q403	BZ510024	TNYTJ03001	COMPOUND TRANSISTOR	DTC114TSTP	
Q405	BZ510010	TC3T022710	TRANSISTOR,SILICON	2SC2271(D,E)-AE	
⚠ Q406	BZ510036	TD30026270	TRANSISTOR,SILICON	2SD2627LS-CBC11	
Q501	BZ510011	TC3T029090	TRANSISTOR,SILICON	2SC2909(S,T)-AA	
Q502	BZ510005	TA3T1371A0	TRANSISTOR,SILICON	2SA1371(D,E)-AE	
Q503	BZ510005	TA3T1371A0	TRANSISTOR,SILICON	2SA1371(D,E)-AE	
Q504	BZ510012	TC5T018154	TRANSISTOR,SILICON	2SC1815Y(TPE2)	
Q505	BZ510011	TC3T029090	TRANSISTOR,SILICON	2SC2909(S,T)-AA	
Q506	BZ510024	TNYTJ03001	COMPOUND TRANSISTOR	DTC114TSTP	
Q507	BZ510014	TCST009450	TRANSISTOR,SILICON	2SC945(C)-T(P,Q)	
Q508	BZ510008	TB3T008920	TRANSISTOR,SILICON	2SB892(S,T)-AE	
Q509	BZ510024	TNYTJ03001	COMPOUND TRANSISTOR	DTC114TSTP	
Q513	BZ510023	TNYTB03001	COMPOUND TRANSISTOR	DTC114ESTP	
Q601	BZ510037	TC3T030000	TRANSISTOR,SILICON	2SC3000-AA	
Q602	BZ510002	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S	
Q603	BZ510020	TNYJB05001	COMPOUMD TRANSISTOR	DTC114EKAT146	
Q604	BZ510020	TNYJB05001	COMPOUMD TRANSISTOR	DTC114EKAT146	
Q605	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S	
Q608	BZ510038	TAYT0933S0	TRANSISTOR,SILICON	2SA933STP(R,S)	

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
			TRANSISTORS	
Q609	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q610	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
⚠ Q804	BZ510009	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
⚠ Q805	BZ510009	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
⚠ Q806	BZ510009	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
Q851	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q852	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q853	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q855	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q856	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q862	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q863	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q1001	BZ410049	0002700590	PHOTO COUPLER	RPI-301
Q1002	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q1003	BZ410041	0002700530	PHOTO COUPLER	RPI-352Q01R
Q1004	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q1005	BZ410049	0002700590	PHOTO COUPLER	RPI-301
Q1006	BZ510026	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q1007	BZ510022	TNYJJ05001	COMPOUND TRANSISTOR	DTC114TKAT146
Q1008	BZ510022	TNYJJ05001	COMPOUND TRANSISTOR	DTC114TKAT146
Q1009	BZ410041	0002700530	PHOTO COUPLER	RPI-352Q01R
Q1010	BZ510031	TD3T007340	TRANSISTOR,SILICON	2SD734(E,F)-AA
Q1011	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q1014	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q1015	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q1016	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q1017	BZ410042	0000100380	PHOTO TRANSISTOR	PNA2604M010R
Q1018	BZ510008	TB3T008920	TRANSISTOR,SILICON	2SB892(S,T)-AE
Q1019	BZ510008	TB3T008920	TRANSISTOR,SILICON	2SB892(S,T)-AE
Q1020	BZ510019	TNYJA05001	COMPOUND TRANSISTOR	DTC143EKAT146
Q1021	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4001	BZ510031	TD3T007340	TRANSISTOR,SILICON	2SD734(E,F)-AA
Q4002	BZ510031	TD3T007340	TRANSISTOR,SILICON	2SD734(E,F)-AA
Q4003	BZ510026	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q4004	BZ510016	TCWT022740	TRANSISTOR,SILICON	2SC2274-AA
Q4005	BZ510016	TCWT022740	TRANSISTOR,SILICON	2SC2274-AA
Q4006	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q4007	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4010	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4201	BZ510039	TNYTB05001	COMPOUND TRANSISTOR	DTC114EKT147
Q4501	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4502	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q4505	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4507	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4509	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4510	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4511	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4512	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
			COILS &TRANSFORMERS	
L004	BZ310022	02A6A8A0A1	CORE,FERRITE	HF57T18.5*10*10
L351	BZ310022	02A6A8A0A1	CORE,FERRITE	HF57T18.5*10*10
L401	BZ310004	021679472K	COIL	4.7 MH
L402	BZ310013	0221000013	COIL,LINEARITY	ELH5L4112
⚠ L501	BZ310046	029K000001	COIL,LINE FILTER	RB-20871
⚠ L502	BZ310047	029T000094	COIL,LINE FILTER	22 MH
⚠ L503	BZ310048	028F140018	COIL,DEGAUSS	8F140018
L600	BZ310021	02A1281872	CORE,TRIDAL	KR16TT281807D
L601	BZ310005	02167D101K	COIL	100 UH
L603	BZ310043	021LA6150K	COIL	15 UH
L604	BZ310049	021LA6R22M	COIL	0.22 UH
L605	BZ310005	02167D101K	COIL	100 UH
L606	BZ310009	021LA62R2K	COIL	2.2 UH
L608	BZ310050	03360K0438	COIL,VIDEO IFT	360K043
L609	BZ310005	02167D101K	COIL	100 UH
L610	BZ310051	0216S12R2J	COIL	2.2 UH
L851	BZ310053	021673100K	COIL	10 UH
L852	BZ310053	021673100K	COIL	10 UH
L854	BZ310002	021673101K	COIL	100 UH
L1001	BZ310038	021LA6120K	COIL	12 UH
L4001	BZ310024	0326230038	COIL,TRAP	2623003
L4002	BZ310005	02167D101K	COIL	100 UH
L4003	BZ310005	02167D101K	COIL	100 UH
L4004	BZ310041	02167F101J	COIL	100 UH
L4005	BZ310054	0316260088	COIL,BIAS OSC	1626008
L4006	BZ310055	02167D102K	COIL	1 MH
L4007	BZ310005	02167D101K	COIL	100 UH
L4008	BZ310056	021673102K	COIL	1 MH

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
			COILS &TRANSFORMERS	
L4009	BZ310005	02167D101K	COIL	100 UH
L4010	BZ310005	02167D101K	COIL	100 UH
L4011	BZ310038	021LA6120K	COIL	12 UH
L4012	BZ310057	021LA6221K	COIL	220 UH
L4013	BZ310005	02167D101K	COIL	100 UH
L4015	BZ310005	02167D101K	COIL	100 UH
L4016	BZ310010	021LA6390K	COIL	39 UH
L4018	BZ310058	021LA6220K	COIL	22 UH
L4202	BZ310059	0216S1101J	COIL	100 UH
L4203	BZ310059	0216S1101J	COIL	100 UH
L4204	BZ310042	021LA6101K	COIL	100 UH
L4205	BZ310042	021LA6101K	COIL	100 UH
L4501	BZ310002	021673101K	COIL	100 UH
L4502	BZ310002	021673101K	COIL	100 UH
L4503	BZ310052	021LA6100K	COIL	10 UH
L4504	BZ310052	021LA6100K	COIL	10 UH
T401	BZ310025	03305Y002S	TRANS,HORIZONTAL DRIVE	305Y002
T501	BZ310060	0481290554	TRANSFORMER,SWITCHING	81290554
			JACKS	
⚠ J351	BZ614002	060G131014	RCA JACK	HTJ-035-28A
J701	BZ614001	0602101020	JACK,RCA	JPJ3811-01-430
⚠ J801	BZ614004	066X120014	SOCKET,CATHODE RAY TUBE	HPS3200-010501
J4501	BZ614093	063G100037	SOCKET,21PIN	035_0_9985_05
			SWITCHES	
⚠ SW501	BZ612007	0530205001	SWITCH PLUS	SDDFC30200
SW1001	BZ612002	0508221001	SWITCH (LEAF)	SPVF130100
SW1002	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010
SW1003	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010
SW1004	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010
SW1005	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010
SW1006	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010
SW1007	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010
SW1008	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010
SW1009	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010
SW1010	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010
SW1011	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010
SW1012	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010
			VARIABLE RESISTORS	
VR502	BZ210025	V1263L2BTC	VOLUME,SEMI FIXED	RH063MCN2R
			P.C.BOARD ASSEMBLIES	
PCB010	BZ610058	A57054A01A	PCB ASS'Y	VMX193A
PCB030	BZ610059	A57054A03A	PCB ASS'Y	TE9A16A
PCB070	BZ610060	A57054A07A	PCB ASS'Y	TMX473A
PCB110	BZ610061	A57054A11A	PCB ASS'Y	TCX333A
PCB340	BZ610062	A57054A34A	PCB ASS'Y	TEXA36A
PCB550	BZ610053	A4C831B550	SEE CHASSIS REPLACEMENT PARTS LIST	
			MISCELLANEOUS	
ANT001	BZ614094	125C500017	ANTENNA,LOOP	TU-33AP
B504	BZ310016	024AT03655	CORE,BEADS	BL01RN1-A63T6
B505	BZ310061	024A8407C3	CORE,BEADS	BL02RN2-R62T2
B851	BZ310017	024DT03581	CORE,BEADS	LFP3A-M3R2TA
B4501	BZ310062	024AC3601C	CORE,BEADS	BLM21A601SPT
B4502	BZ310062	024AC3601C	CORE,BEADS	BLM21A601SPT
CD001	BZ614095	06CDL02003	CABLE,PAL	CDL02003
CD302	BZ614096	06CH12426A	CORD CONNECTOR	CH12426A
CD351	BZ614026	06CH27081A	CORD CONNECTOR	CH27081A
CD352	BZ614097	06CH25088A	CORD CONNECTOR	CH25088A
⚠ CD501	BZ614098	1206635823	CORD,AC	1206635823
CD502	BZ614099	06CPU2012A	CORD CONNECTOR	CPU2012A
CD653	BZ614100	06CH01408A	CORD,EIS CONNECTOR	CH01408A
CD801	BZ614007	068M82025A	CORD CONNECTOR	8M82025A
CD810	BZ614101	06CH28096A	CORD CONNECTOR	CH28096A
CD850	BZ614024	06CH25080A	CORD CONNECTOR	CH25080A
CF601	BZ613009	1022V39R52	FILTER,SAW	SAF39.5MZL220ZL
CF602	BZ613010	1012T04101	FILTER,CERAMIC TRAP	MKT41.5MA110P
CP302	BZ614019	069X120249	CONNECTOR PCB SIDE	B2B-EH-A
CP351	BZ614102	0694270139	CONNECTOR PCB SIDE	173979-7
CP401	BZ614020	069X450029	CONNECTOR PCB SIDE	B05B-DVS
CP501	BZ614012	0697320039	CORD UX CONNECTOR	THL-P03P-B1
CP502	BZ614018	069W420029	CONNECTOR PCB SIDE	TV-50P-02-A1
CP502	BZ614103	06CH2D068A	CORD CONNECTOR	CH2D068A
CP504	BZ614012	0697320039	CORD UX CONNECTOR	THL-P03P-B1
CP603	BZ614104	069E290129	CONNECTOR PCB SIDE	8283_0912_00_000
CP757	BZ614013	069E250129	CONNECTOR PCB SIDE	8283_0512_00_000
CP801	BZ614017	069W320018	CONNECTOR PCB SIDE	TS-80P-02-V1
CP807	BZ614058	069W010010	CONNECTOR PCB SIDE	005P-2100
CP810	BZ614105	069E280129	CONNECTOR PCB SIDE	8283_0812_00_000

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
			MISCELLANEOUS	
CP820	BZ614106	069E2D0129	CONNECTOR PCB SIDE	8283_1312_00_000
CP850	BZ614013	069E250129	CONNECTOR PCB SIDE	8283_0512_00_000
CD1006	BZ614107	122S040804	CORD JUMPER	1.25X4X83XC
CD4005	BZ614108	122S061401	CORD JUMPER	1.25X6X138XC
CP1004	BZ614010	0697280590	CONNECTOR PCB SIDE	TMC-J08P-B1
CP1005	BZ614049	069J750029	CONNECTOR PCB SIDE	IMSA-9604S-05Z14
CP1006	BZ614014	069J740029	CONNECTOR PCB SIDE	IMSA-9604S-04Z14
CP4001	BZ614054	0697240600	CONNECTOR PCB SIDE	TOC-C04X-B1
CP4004	BZ614009	0697120320	CONNECTOR PCB SIDE	TMC-T02X-E1
CP4005	BZ614050	069J760029	CONNECTOR PCB SIDE	IMSA-9604S-06Z14
CP803A	BZ614006	067R105019	WIRE HOLDER	51052-0500
CP803B	BZ614006	067R105019	WIRE HOLDER	51052-0500
CUS011	BZ710279	800WFAA006	CUSHION A	
CUS011	BZ710149	800WFAA008	CUSHION C	
CUS012	BZ710148	800WFAA007	CUSHION B	
EL001	BZ614043	124116281A	EYE LET	XRY16X28BD
EL002	BZ614044	124120301A	EYE LET	XRY20X30BD
⚠ F501	BZ614109	0808T04002	FUSE	218004
⚠ F502	BZ614110	0808T1R602	FUSE	21801.6
FB401	BZ614111	043213012R	TRANSFORMER,FLYBACK	3213012R
FH501	BZ614005	06710T0006	HOLDER,FUSE	EYF-52BC
FH502	BZ614005	06710T0006	HOLDER,FUSE	EYF-52BC
FH503	BZ614005	06710T0006	HOLDER,FUSE	EYF-52BC
FH504	BZ614005	06710T0006	HOLDER,FUSE	EYF-52BC
⚠ ICP502	BZ614036	083PC05002	MICRO FUSE	251005
⚠ ICP504	BZ614036	083PC05002	MICRO FUSE	251005
OS1001	BZ614031	0779014002	REMOTE RECEIVER	GP1U281Q
⚠ RY501	BZ612008	0560Q20114	RELAY	SDT-S-112LMR
SP351	BZ614029	070C533008	SPEAKER	810-47-171
TH501	BZ410050	D8R0A140M0	DEGAUSS ELEMENT	PTH451A140M21
TM101	BZ614112	076N0DM010	TRANSMITTER	VT-1402
TU601	BZ610063	0144W07023	TUNER,UHF	NJH3023M218
⚠ V801	BZ614037	098Q140496	CRT W/DY	A34AGT13*07
X601	BZ613011	100CT4R406	CRYSTAL	HC-94/U
X851	BZ613012	100CT01302	CRYSTAL	HC-49/U-S
X1001	BZ613007	100CT01002	CRYSTAL	HC-49/U-S
X1002	BZ613001	100C32R803	CRYSTAL	DSVT-200
X4001	BZ613013	100CT4R407	CRYSTAL	HC-49/U

RESISTOR

RC.....	CARBON RESISTOR

CAPACITORS

CC.....	CERAMIC CAPACITOR
CE.....	ALUMI ELECTROLYTIC CAPACITOR
CP.....	POLYESTER CAPACITOR
CPP.....	POLYPROPYLENE CAPACITOR
CPL.....	PLASTIC CAPACITOR
CMP.....	METAL POLYESTER CAPACITOR
CMPL.....	METAL PLASTIC CAPACITOR
CMPP.....	METAL POLYPROPYLENE CAPACITOR

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